PREVIEW TO CAREER PATHWAYS

2015-2016

Learning that works for Kentucky
CTE

Kentucky Department of Education

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Preview to Career Pathways
2015-2016

MISSION OF DOCUMENT: A Consolidated Publication of Kentucky Career Pathways to Promote Local Development of Master Scheduling and Guidance Tools to Support Student Success in Career and College Readiness.

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CAREER AND TECHNICAL EDUCATION TERMINOLOGY

CTE Terminology	Definition
Career Pathway	In alignment with Federal Perkins Regulations, a Career Pathway will: I. incorporate secondary education and postsecondary education elements; II. include coherent and rigorous content aligned with challenging academic standards and relevant career and technical content in a coordinated, nonduplicative progression of courses that align secondary education with postsecondary education to adequately prepare students to succeed in postsecondary education; III. may include the opportunity for secondary education students to participate in dual or concurrent enrollment programs or other ways to acquire postsecondary education credits; and IV. lead to an industry-recognized credential or certificate at the postsecondary level, or an associate or baccalaureate degree;
CIP Code Definition	The Classification of Instruction Program (CIP) provides a taxonomic scheme (i.e. classification of fields of study) that supports the accurate tracking and reporting of fields of study and program completion activity.
Completer Student	Secondary student who is leaving secondary education and completes four (4) or more credits in the pathway.
Kentucky Occupational Skills Standards (KOSSA)	Kentucky Occupational Skill Standards and Assessments is a career-ready technical measure for CCR state accountability and a performance indicator of technical skills attainment for federal Perkins accountability. These industry endorsed standards are developed in collaboration with business and industry partners and drive the development of assessments for career and technical education.
Kentucky Valid List of Industry Certifications & KOSSA Assessments	The Kentucky Valid List of Industry Certifications & KOSSA Assessments document is updated annually and released on July 1st of each year. Organized by CTE program areas and pathway, it serves as the official list of approved technical skill assessments for Perkins/CCR accountability. A link to this document can be found on the KOSSA homepage of the KDE website.
Perkins	The Carl D. Perkins Vocational and Technical Education Act was first authorized by the federal government in 1984 and reauthorized in 1998. Named for Carl D. Perkins, the act aims to increase the quality of technical education within the United States in order to help the economy. The Carl D. Perkins Career and Technical Education Act was last authorized on August 12, 2006. The new Act provides an increased focus on the academic achievement of career and technical education students, strengthens the connections between secondary and postsecondary education, and improves state and local accountability. The new law also includes requirements for "programs of study (which Kentucky refers to as Career Pathways)" that link academic and technical content across secondary and postsecondary education, and strengthened local accountability provisions that will ensure continuous program improvement. The Perkins Act provides almost $1.3 billion in federal support for career and technical education programs in all 50 States, including support for integrated career pathways programs.
Preparatory Student	Any student who is enrolled in a preparatory program who has _successfully completed two credits and has enrolled in the third credit_ within an approved career pathway. • **_"Completed two"_** *means on the transcript the student has passed and received 2 credits from valid course(s) as part of the pathway.* • **_"Enrolled in the third credit"_** *means the student is scheduled to take the third credit sometime during the academic year. It is expected the student will successfully complete the credit bearing course(s) during the year. If the student withdraws or fails the third credit course(s) (must receive a credit on the student transcript), his/her status must be changed from preparatory back to exploring.* **All <u>Senior Preparatory</u> students must sit for the KOSSA/Industry Certification assigned to the career pathway he/she is enrolled in, <u>unless</u> the student has previously had the opportunity to take a technical skills measure.**
TEDS	The Technical Education Database System (TEDS) is the official repository of student data for all career and technical education data in Kentucky, which includes Perkins and Career Readiness.
Work-Based Learning (WBL)	Work-Based Learning can be experienced in multiple forms such as: cooperative education, entrepreneurial program, internship, mentoring, school-based enterprises, service learning and shadowing. Additional information related to WBL can be found via: http://education.ky.gov/CTE/cter/Pages/WBL.aspx

College and Career Readiness for All

College-Ready	Career-Ready		College & Career-Ready	
(1 Point)	(1 Point)		(1.5 Points)	
A student must meet benchmarks on one of the following:	A student must meet benchmarks on one from **each** of the following columns:		A student must meet benchmarks on one from **each** of the following columns:	
	Career-Ready Academic	Career-Ready Technical	College-Ready Academic	College-Ready Technical
ACT COMPASS KYOTE	ASVAB WorkKeys	KOSSA Industry Certificate	ACT COMPASS KYOTE	KOSSA Industry Certificate

College-Ready

A **college-ready student** meets the benchmarks on the **ACT** (18 for English, 20 for Reading and 19 for Mathematics) or passed either **COMPASS** (74 for English, 85 for Reading and 36 for Mathematics) or **KYOTE** (6 for Writing, 20 for Reading, 22 for College Ready Math and 14 for College Algebra) college placement tests. Students who fail one or more measures on the ACT but pass the corresponding measure on one of the placement tests are college-ready.

Career-Ready

A **career-ready student** is preparatory (has completed two credits and is enrolled in a third credit) for a CTE career pathway (state-approved sequence of progressive, nonduplicative courses that result in earning four credits), has received either an approved industry certification or Kentucky Occupational Skill Standards Assessment (**KOSSA**) certificate (with a minimum score of 70) related to his or her career pathway, **and** has met the benchmark on **ACT WorkKeys** with a minimum score of 75 for each part (Applied Mathematics, Locating Information and Reading for Information) which is equivalent to a Silver Certificate or above **or** a minimum score of 50 on the **ASVAB**.

College and Career Ready

A **college and career ready student** is preparatory for a CTE career pathway, has received either an approved industry certification or KOSSA certificate related to his or her pathway **and** has qualified to be college-ready based on the above definition.

Thank you to Jefferson County Public Schools for sharing this design concept.

What's NEW?

Each Career Pathway is formatted consistently.

Program Area

Career Pathway Name & CIP Code

Description of Career Pathway

Example ILP Related Career Titles

Best Practice Core Specific State Course Codes

MARKETING EDUCATION CAREER PATHWAYS
2015-2016

ADVERTISING
CIP 09.0903.00

PATHWAY DESCRIPTION: A program that focuses on the creation, execution, transmission, and evaluation of commercial messages in various media intended to promote and sell products, services, and brands; and that prepares individuals to function as advertising assistants, technicians, and managers. Includes instruction in advertising theory, marketing strategy, advertising design and production methods, campaign methods and techniques, media management, related principles of business management, and applicable technical and equipment skills.

BEST PRACTICE CORE	EXAMPLE ILP-RELATED CAREER TITLES
Foundational Skills Necessary for Career-Ready Measure: (KOSSA/Industry Certification) *Complete (2-3)* **TWO-THREE CREDITS:** • 080716 Principles of Marketing <u>OR</u> 081411 Retail Marketing • 080717 Advanced Marketing • 081511 Advertising & Promotions *Choose (1-2)* **ONE-TWO CREDITS** *from the following:* • 081512 Promotional Applications & Media • 081431 Retail Marketing Management • 080310 Entrepreneurship • 080707 Marketing Education Internship • 080708 Marketing Education Co-op	Marketing Specialist Event Planner Sales Representative Retail Salesperson Advertising Copywriter Advertising Account Executive

2015-2016
Preview to Career Pathways Document Explained

The *Preview to Career Pathways* document promotes a best practice core.

Designed to Promote Guidance Through a Four-Course Sequence

BEST PRACTICE CORE

Foundational Skills Necessary for Career-Ready Measure:
(KOSSA/Industry Certification)

Complete (2-3) TWO-THREE CREDITS:

- 080716 Principles of Marketing OR 081411 Retail Marketing
- 080717 Advanced Marketing
- 081511 Advertising & Promotions

Choose (1-2) ONE-TWO CREDITS from the following:

- 081512 Promotional Applications & Media
- 081431 Retail Marketing Management
- 080310 Entrepreneurship
- 080707 Marketing Education Internship
- 080708 Marketing Education Co-op

Foundational Skills

Flexibility to specialize Pathway with local resources
(such as partnerships with Business and Industry or dual credit opportunities)
&
local CTE Program Area teacher preference based on state approved pathway courses.

2015-2016

Preview to Pathways Document Explained

It is recommended that local schools use the *Preview to Career Pathways* document to CHOOSE/CUSTOMIZE career pathways prior to developing a master schedule and scheduling students.

CTE Program Area Teachers should be involved in choosing the specific courses in the pathway and differentiate between any of the "OR" options based on state approved pathway courses.

BEST PRACTICE CORE

Foundational Skills Necessary for Career-Ready Measure: (KOSSA/Industry Certification)

Complete (2-3) **TWO-THREE CREDITS:**

- 080716 Principles of Marketing <u>OR</u> 081411 Retail Marketing
- 080717 Advanced Marketing
- 081511 Advertising & Promotions

Choose (1-2) **ONE-TWO CREDITS** *from the following:*

- 081512 Promotional Applications & Media
- 081431 Retail Marketing Management
- 080310 Entrepreneurship
- 080707 Marketing Education Internship
- 080708 Marketing Education Co-op

2015-2016
Preview to Career Pathways Document Explained

Transportation Education Career Pathways
2015-2016

Automotive Maintenance and Light Repair Technician
CIP 47.0___

PATHWAY DESCRIPTION: A program that prepares
to repair, service, and maintain all types of automobiles.
systems, engine performance, engine repair, suspension
and drive trains, and heating and air condition systems.

BEST PRACTICE CORE

Foundational Skills Necessary for Career-Ready Measur
(KOSSA/Industry Certification)

*470507 Automotive Maintenance and Light Repair Sec
*470509 Automotive Maintenance and Light Repair Sec
*470511 Automotive Maintenance and Light Repair Sec
*470513 Automotive Maintenance and Light Repair Sec

These courses can be taken in ANY order. There are NO
to enter these classes.

Example:
"Section "D" can be taken before Section "A".
"Section "C" can be taken before Section "B".

> Certain Career Pathways directly align with Industry and require a SPECIFIC four course sequence with labs to meet Industry required hours. Therefore, there is no flexibility in pathway courses in these specific situations.

COMPLIMENTARY OR ADVANCED COURSEWORK BEYOND COLLISION REPAIR TECHNOLOGY PATHWAY(s)

Upon completion of a pathway, additional coursework to enhance student learning is encouraged.

Credits earned in Advanced or Complimentary Coursework "Beyond the Pathway" may not be substituted for pathway courses in order to achieve Preparatory or Completer status.

470652 Non-Structural Damage and Repair Special Problems Lab
470601 Co-Op I Colli
460301 Industrial Saf
060170 Personal Fina
470604 Collision Rep
470679 Special Proje
060191 Workplace Pr

> Upon completion of a pathway, additional coursework to enhance student learning is encouraged.
>
> Credits earned in Advanced or Complementary Coursework "Beyond the Pathway" may not be substituted for pathway courses in order to achieve Preparatory or Completer status.

AGRICULTURAL EDUCATION

AGRICULTURAL EDUCATION CAREER PATHWAYS
2015-2016

AGRIBUSINESS SYSTEMS
CIP 01.0101.00

PATHWAY DESCRIPTION: Agribusiness systems contribute to the production, processing, marketing, distribution, financing and development of agricultural commodities and resources. This includes food, fiber, wood products, natural resources, horticulture, and other plant and animal products and services. Agribusiness is a high-tech industry that uses satellite systems, computer databases and spreadsheets, biotechnology and many other innovations to increase efficiency and profitability.

BEST PRACTICE CORE	EXAMPLE ILP-RELATED CAREER TITLES
Foundational Skills Necessary for Career-Ready Measure: *(KOSSA/Industry Certification)* *Complete (1-2) ONE - TWO CREDITS from the following:* • 030715 Principles of Agricultural Science and Technology • 030711 Agriscience *Choose (2-3) TWO - THREE CREDITS from the following:* • 010131 Agribusiness/Farm Management • 010121 Ag. Employability Skills • 010111 Agriculture Sales & Marketing • 010110 Agriculture Communications *May Substitute <u>ONE</u> Credit Below for Pathway Core:* • 010641 Greenhouse Technology • 020503 Small Animal Technology • 030790 Agricultural Education Co-op • 030791 Agricultural Education Internship	Entrepreneur Photojournalist Agriculture Lawyer Sales Representative Independent Business Owner Editor Retail Salesperson Auctioneer

AGRICULTURAL EDUCATION CAREER PATHWAYS
2015-2016

AGRIBIOTECHNOLOGY SYSTEMS
CIP 26.1200.00

PATHWAY DESCRIPTION: Agribiotechnology focuses on the application of scientific principles and techniques to advance the agriculture industry. Focusing on animal and plant concepts, this pathway develops competency by analyzing current procedures in agriculture while synthesizing new ways of thinking. Microbiology, molecular biology, enzymology and immunology procedures are centerpieces for determining how to feed an ever growing world population.

BEST PRACTICE CORE	EXAMPLE ILP-RELATED CAREER TITLES

Foundational Skills Necessary for Career-Ready Measure: (KOSSA/Industry Certification)
 	
   Complete (1-2) ONE - TWO CREDITS:
 	
• 030715 Principles of Agricultural Science and Technology
• 030711 Agriscience
 	
   Choose (2-3) TWO - THREE CREDITS from the following:
 	
• 030713 Agri-Biology
• 020210 Agribiotechnology
• 020511 Veterinary Science
• 010702 Food Science & Technology
• 030609 Environmental Science & Technology
 	
   May Substitute <u>ONE</u> Credit Below for Pathway Core:
 	
• 020520 Aquaculture
• 010121 Ag. Employability Skills
• 030790 Agricultural Education Co-op
• 030791 Agricultural Education Internship
	Biotechnologist
	
	Veterinarian
	
	Marine Biologist
	
	Biomedical Engineer
	
	Biologist
	
	Biochemist
	
	Microbiologist
	
	Botanist

AGRICULTURAL EDUCATION CAREER PATHWAYS
2015-2016

AGRICULTURAL POWER, STRUCTURAL, TECHNICAL SYSTEMS
CIP 01.0201.00

PATHWAY DESCRIPTION: The Power, Structural and Technical Systems pathway is built on the application of concepts in engineering, hydraulics, pneumatics, electronics, power, structures, and controls to the field of agriculture. Students design agricultural structures as well as machinery and equipment, while utilizing safe practices of operation and maintenance.

BEST PRACTICE CORE	EXAMPLE ILP-RELATED CAREER TITLES
Foundational Skills Necessary for Career-Ready Measure: (KOSSA/Industry Certification)	Agricultural Engineer
	Welder
Complete (1-2) ONE - TWO CREDITS from the following:	Mechanical Engineer
	Diesel Technician
• 030715 Principles of Agricultural Science and Technology	Electrical Engineer
• 030711 Agriscience	Heavy Equipment Technician
Choose (2-3) TWO - THREE CREDITS from the following:	Farm Equipment Technician
• 010241 Agriculture Construction Skills	Small Engine Mechanic
• 010231 Small Power Equipment	
• 010212 Agriculture Power and Machinery Operation	
• 010211 Agriculture Structures and Designs	
May Substitute ONE Credit Below for Pathway Core:	
• 010111 Agriculture Sales and Marketing	
• 010121 Ag. Employability Skills	
• 010131 Agribusiness/Farm Management	
• 030790 Agricultural Education Co-op	
• 030791 Agricultural Education Internship	

AGRICULTURAL EDUCATION CAREER PATHWAYS
2015-2016

ANIMAL SCIENCE SYSTEMS
CIP 01.0901.00

PATHWAY DESCRIPTION: This program that focuses on the scientific principles that underline the breeding, care, and management of agricultural animals, and the production, processing, and distribution of agricultural animal products. This includes developing better, more efficient ways of producing and processing meat, poultry, eggs and dairy products, as well as studying genetics, nutrition, reproduction, growth and development of animals.

BEST PRACTICE CORE	EXAMPLE ILP-RELATED CAREER TITLES
Foundational Skills Necessary for Career-Ready Measure: *(KOSSA/Industry Certification)* *Complete (1-2) ONE - TWO CREDITS:* • 030715 Principles of Agricultural Science and Technology • 030711 Agriscience *Choose (2-3) TWO - THREE CREDITS from the following:* • 020501 Animal Science • 020502 Animal Technology • 020510 Equine Science • 020503 Small Animal Technology • 020511 Veterinary Science • 020504 Murray State University Advanced Animal Science *May Substitute ONE Credit Below for Pathway Core:* • 010702 Food Science & Technology • 010701 Food Processing, Distribution & Marketing • 020520 Aquaculture • 010111 Agriculture Sales and Marketing • 030713 Agribiology • 010131 Agribusiness/Farm Management • 010121 Ag. Employability Skills • 030790 Agricultural Education Co-op • 030791 Agricultural Education Internship	Veterinarian Animal Scientist Marine Biologist Zoologist Horse Trainer Animal Breeder Farmer Veterinary Technician

AGRICULTURAL EDUCATION CAREER PATHWAYS
2015-2016

ENVIRONMENTAL SCIENCE/NATURAL RESOURCES SYSTEMS
CIP 03.0101.00

PATHWAY DESCRIPTION: This program that focuses on the studies and activities relating to the natural environment and its conservation, use, and improvement. Includes instruction in subjects such as climate, air, soil, water, land, fish and wildlife, and plant resources; in the basic principles of environmental science and natural resources management; and the recreational and economic uses of renewable and nonrenewable natural resources.

BEST PRACTICE CORE	EXAMPLE ILP-RELATED CAREER TITLES
Foundational Skills Necessary for Career-Ready Measure: (KOSSA/Industry Certification) *Complete (1-2) ONE - TWO CREDITS:* • 030715 Principles of Agricultural Science and Technology • 030711 Agriscience *Choose (2-3) TWO - THREE CREDITS from the following:* • 030610 Forestry • 030609 Environmental Science & Technology • 030611 Wildlife Resources • 020520 Aquaculture • 010611 Plant & Land Science • 030713 Agribiology *May Substitute ONE Credit Below for Pathway Core:* • 010121 Ag. Employability Skills • 010111 Agriculture Sales & Marketing • 010651 Nursery and Orchard Tech • 010641 Greenhouse Technology • 030790 Agricultural Education Co-op • 030791 Agricultural Education Internship	Conservation Officer Park Warden / Ranger Outdoor Guide Environmental Engineer Ecologist Wildlife Technician Taxidermist Arborist

FOOD SCIENCE AND PROCESSING SYSTEMS
CIP 01.1001.00

PATHWAY DESCRIPTION: A program that focuses on the application of biological, chemical, and physical principles to the study of converting raw agricultural products into processed forms suitable for direct human consumption, and the storage of such products. Includes instruction in applicable aspects of the agricultural sciences, human physiology and nutrition, food chemistry, agricultural products processing, food additives, food preparation and packaging, food storage and shipment, and related aspects of human health and safety including toxicology and pathology.

BEST PRACTICE CORE	**EXAMPLE ILP-RELATED CAREER TITLES**
Foundational Skills Necessary for Career-Ready Measure: (KOSSA/Industry Certification)	Food Inspector
	Butcher
Complete (1-2) ONE - TWO CREDITS:	Food Scientist
	Veterinarian
• 030715 Principles of Agricultural Science and Technology	Chef
• 030711 Agriscience	Cook
	Scientist
Choose (2-3) TWO - THREE CREDITS from the following:	Dietitian
• 030713 Agri-Biology	
• 010702 Food Science & Technology	
• 010701 Food Processing, Distribution & Marketing	
• 020210 Agribiotechnology	
May Substitute ONE Credit Below for Pathway Core:	
• 020501 Animal Science	
• 020520 Aquaculture	
• 010111 Agriculture Sales & Marketing	
• 010121 Ag. Employability Skills	
• 030790 Agricultural Education Co-op	
• 030791 Agricultural Education Internship	

AGRICULTURAL EDUCATION CAREER PATHWAYS
2015-2016

HORTICULTURE AND PLANT SCIENCE SYSTEMS
CIP 01.1101.00

PATHWAY DESCRIPTION: This program that focuses on the scientific principles that underlie the breeding, cultivation, and production of agricultural plants, and the production, processing, and distribution of agricultural plant products. Includes instruction in the plant sciences, crop cultivation and production, and agricultural and food products processing.

BEST PRACTICE CORE	EXAMPLE ILP-RELATED CAREER TITLES
Foundational Skills Necessary for Career-Ready Measure: (KOSSA/Industry Certification) *Complete (1-2) ONE - TWO CREDITS:* • 030715 Principles of Agricultural Science and Technology • 030711 Agriscience *Choose (2-3) TWO - THREE CREDITS from the following:* • 010611 Plant/Land Science • 010621 Floriculture/Floral Design • 010641 Greenhouse Technology • 010651 Nursery /Orchard Technology • 010631 Landscaping/Turf Management • 010610 Crop Technology *May Substitute ONE Credit Below for Pathway Core:* • 010131 Agribusiness/Farm Management • 010121 Ag. Employability Skills • 010111 Agriculture Sales and Marketing • 030713 Agribiology • 030790 Agricultural Education Co-op • 030791 Agricultural Education Internship	Horticulturist Agronomist Landscaper Farmer Scientist Landscape Architect Nursery / Greenhouse Grower Botanist

COMPLEMENTARY OR ADVANCED COURSEWORK BEYOND AGRICULTURAL EDUCATION PATHWAY(s)
Upon completion of a pathway, additional coursework to enhance student learning is encouraged. Credits earned in Advanced or Complementary Coursework "Beyond the Pathway" may not be substituted for pathway courses in order to achieve Preparatory or Completer status.
• 030702 Leadership Dynamics
• Career Options
• JAG Courses

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BUSINESS EDUCATION

BUSINESS EDUCATION CAREER PATHWAYS
2015-2016

ACCOUNTING
CIP 52.0301.00

PATHWAY DESCRIPTION: A program that prepares individuals to practice the profession of accounting and to perform related business functions. Includes instruction in accounting principles and theory, financial accounting, managerial accounting, cost accounting, budget control, tax accounting, legal aspects of accounting, auditing, reporting procedures, statement analysis, planning and consulting, business information systems, accounting research methods, professional standards and ethics, and applications to specific for-profit, public, and non-profit organizations.

BEST PRACTICE CORE	EXAMPLE ILP-RELATED CAREER TITLES
Foundational Skills Necessary for Career-Ready Measure: *(KOSSA/Industry Certification)* *Complete (2-3) TWO-THREE CREDITS from the following:* • 060112 Digital Literacy <u>OR</u> 110110 Computer Literacy <u>OR</u> 060111 Business Principles and Applications • 060122 Accounting & Finance Foundations • 070122 Financial Accounting • 070125 Advanced Accounting (Requires Special Teacher Training) *Choose (1-2) ONE-TWO CREDITS from the following:* • 060170 Financial Literacy (CTE Credit)/060171 (Math Credit) • 060411 Business Management • 070743 Advanced Computer & Technology Applications • 060108 Business Education Internship • 060107 Business Education Co-op	Accountant Forensic Accountant Planner Tax Preparer Auditor Auditing Clerk Budget Analyst Tax Examiner

BUSINESS EDUCATION CAREER PATHWAYS
2015-2016

ADMINISTRATIVE SUPPORT
CIP 52.0401.00

PATHWAY DESCRIPTION: A program that generally prepares individuals to perform the duties of administrative assistants and/or secretaries and stenographers. Includes instruction in business communications, principles of business law, word processing and data entry, office machines operation and maintenance, office procedures, public relations, secretarial accounting, filing systems and records management, and report preparation.

BEST PRACTICE CORE	EXAMPLE ILP-RELATED CAREER TITLES

Foundational Skills Necessary for Career-Ready Measure: *(KOSSA/Industry Certification)*
 	
  *Complete **(2-4) TWO-FOUR CREDITS** from the following:*
 	
• 060112 Digital Literacy <u>OR</u> 110110 Computer Literacy <u>OR</u> 060111 Business Principles and Applications
 	
• 060122 Accounting & Finance Foundations <u>OR</u> 060170 Financial Literacy (CTE Credit)/ 060171 (Math Credit)
 	
• 070743 Advanced Computer & Technology Applications
• 070750 Microsoft Office (MOS)
 	
  *Choose **(1-2) ONE-TWO CREDITS** from the following:*
 	
• 060155 Business Communications
• 060142 Word Processing
• 060121 Business Law
• 060511 Business Economics (CTE Credit)/ 060596 (Economics Credit)
• 060108 Business Education Internship
• 060107 Business Education Co-op
	Administrative Assistant
	
	Human Resources Specialist
	
	Bookkeeper
	
	Court Reporter
	
	Billing & Accounts Collector

BUSINESS EDUCATION CAREER PATHWAYS
2015-2016

BUSINESS MANAGEMENT
CIP 52.0201.01

PATHWAY DESCRIPTION: A program that generally prepares individuals to plan, organize, direct, and control the functions and processes of a firm or organization. Includes instruction in management theory, human resources management and behavior, accounting and other quantitative methods, purchasing and logistics, organization and production, marketing, and business decision-making.

BEST PRACTICE CORE	EXAMPLE ILP-RELATED CAREER TITLES
Foundational Skills Necessary for Career-Ready Measure: (KOSSA/Industry Certification) *Complete (2) TWO CREDITS from the following:* • 060111 Business Principles and Applications <u>OR</u> 080716 Principles of Marketing • 060411 Business Management (Business) <u>OR</u> 080311 Business Management (Marketing) *Choose (2) TWO CREDITS from the following:* • 060112 Digital Literacy <u>OR</u> 110110 Computer Literacy • 060511 Business Economics • 060122 Accounting & Finance Foundations • 060170 Financial Literacy • 060121 Business Law • 060188 International Business • 060108 Business Education Internship • 060107 Business Education Co-op	Entry Level Manager Money Manager Account Manager Real Estate Agent Venture Capitalist Insurance Agent Association Manager Quality Controller

BUSINESS EDUCATION CAREER PATHWAYS 2015-2016	
BUSINESS MULTIMEDIA CIP 52.0501.00	
PATHWAY DESCRIPTION: A program that prepares individuals to function in an organization as a composer, editor and proofreader of business or business-related communications.	
BEST PRACTICE CORE	**EXAMPLE ILP-RELATED CAREER TITLES**

Foundational Skills Necessary for Career-Ready Measure:
(KOSSA/Industry Certification)
 	
    Complete (2-4) TWO-FOUR CREDITS from the following:
 	
• 060112 Digital Literacy <u>OR</u>
  110110 Computer Literacy
• 060751 Multimedia Publishing
• 060199 Web Page Design
• 060761 Advanced Multimedia
 	
    Choose (1-2) ONE-TWO CREDITS from the following:
 	
• 060155 Business Communication
• 081512 Promotional Applications & Media (Marketing)
• 070743 Advanced Computer & Technology Applications
• 060142 Word Processing
• 060108 Business Education Internship
• 060107 Business Education Co-op
	Public Relations Specialist
	
	Desktop Publisher
	
	Proofreader
	
	Web Designer
	
	Multimedia Artist

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BUSINESS EDUCATION CAREER PATHWAYS
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BUSINESS TECHNOLOGY
CIP 52.0408.00

PATHWAY DESCRIPTION: A program that prepares individuals to provide basic administrative support under the supervision of office managers, administrative assistants, secretaries, and other office personnel. Includes instruction in typing, keyboarding, filing, general business correspondence, office equipment operation, and communications skills.

BEST PRACTICE CORE	EXAMPLE ILP-RELATED CAREER TITLES

Foundational Skills Necessary for Career-Ready Measure: (KOSSA/Industry Certification)
 	
Complete (3) THREE CREDITS from the following:
 	
- 060112 Digital Literacy OR
  110110 Computer Literacy OR
  060111 Business Principles and Applications
 	
- 060751 Multimedia Publishing OR
  060199 Web Page Design
 	
- 060411 Business Management OR
  060511 Business Economics
 	
Choose (1) ONE CREDIT from the following:
 	
- 060170 Financial Literacy (CTE Credit)/060171 (Math Credit)
- 060172 Mathematics for Business & Industry (CTE Credit)/060190 (Math Credit)
- 070743 Advanced Computer & Technology Applications
- 060122 Accounting & Finance Foundations
- 060142 Word Processing
- 060108 Business Education Internship
- 060107 Business Education Co-op
 	
**2013-2014 was the last year this pathway consisted of ANY four business credits. The sequence of courses for this pathway was designed by the Kentucky Business Education Task Force.
	Data Entry Clerk
	
	Telephone Operator
	
	Receptionist/Information Clerk
	
	Courier/Messenger

BUSINESS EDUCATION CAREER PATHWAYS
2015-2016

DATABASE MANAGEMENT
CIP 52.1299.00

PATHWAY DESCRIPTION: A program that prepares individuals for development and management of database systems.

BEST PRACTICE CORE	EXAMPLE ILP-RELATED CAREER TITLES
Foundational Skills Necessary for Career-Ready Measure: (KOSSA/Industry Certification) *Complete (4) FOUR CREDITS from the following:* • 060112 Digital Literacy <u>OR</u> 110110 Computer Literacy • 070743 Advanced Computer & Technology Applications • 070331 Data Modeling/SQL • 070399 Web Data Management	Database Developer

BUSINESS EDUCATION CAREER PATHWAYS
2015-2016

FINANCE
CIP 52.0803.01

PATHWAY DESCRIPTION: A program that prepares individuals to perform a wide variety of customer services in banks, insurance agencies, savings and loan companies, and related enterprises. Includes instruction in communications and public relations skills, business equipment operation, and technical skills applicable to the methods and operations of specific financial or insurance services.

BEST PRACTICE CORE	EXAMPLE ILP-RELATED CAREER TITLES

Foundational Skills Necessary for Career-Ready Measure: (KOSSA/Industry Certification)
 	
Complete (2-3) TWO-THREE CREDITS from the following:
 	
• 060112 Digital Literacy OR
  110110 Computer Literacy OR
  060111 Business Principles and Applications
• 060122 Accounting & Finance Foundations
• 060311 Financial Services I
 	
Choose (1-2) ONE-TWO CREDITS from the following:
 	
• 060351 Financial Services II
• 070122 Financial Accounting
• 070125 Advanced Accounting (Requires Special Teacher Training)
• 060399 Advanced Finance & Credit
• 070743 Advanced Computer & Technology Applications
• 060170 Financial Literacy
• 060108 Business Education Internship
• 060107 Business Education Co-op
	Bank Teller
	
	Bank Manager
	
	Loan Officer
	
	Investment Banker
	
	Actuary (evaluates insurance risk/claims)
	
	Investment Advisor
	
	Personal Financial Planner
	
	Research Analyst (Financial)

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BUSINESS EDUCATION CAREER PATHWAYS 2015-2016	

INFORMATION PROCESSING
CIP 52.0407.00

PATHWAY DESCRIPTION: A program that prepares individuals to support business information operations by using computer equipment to enter, process, and retrieve data for a wide variety of administrative purposes. Includes instruction in using basic business software and hardware, business computer networking, principles of desktop publishing, preparing mass mailings, compiling and editing spreadsheets, list maintenance, preparing tables and graphs, receipt control, and preparing business performance reports.

BEST PRACTICE CORE	EXAMPLE ILP-RELATED CAREER TITLES
Foundational Skills Necessary for Career-Ready Measure: *(KOSSA/Industry Certification)* *Complete (1) ONE CREDIT:* • 060112 Digital Literacy <u>OR</u> 110110 Computer Literacy <u>OR</u> 060111 Business Principles and Applications *Complete (1) ONE CREDIT:* • 070743 Advanced Computer & Technology Applications <u>OR</u> 070750 Microsoft Office (MOS) *Complete (1) ONE CREDIT:* • 060751 Multimedia Publishing <u>OR</u> 060142 Word Processing <u>OR</u> 081512 Promotional Applications & Media (Marketing Ed) <u>OR</u> 060155 Business Communication *Complete (1) ONE CREDIT:* • 060122 Accounting & Finance Foundations <u>OR</u> 060170 Financial Literacy (CTE Credit)/060171 (Math Credit) <u>OR</u> 060172 Mathematics for Business & Industry (CTE Credit)/060190 (Math Credit) <u>OR</u> 060108 Business Education Internship <u>OR</u> 060107 Business Education Co-op	Receptionist/Information Clerk Data Entry Clerk Bill and Account Collector Insurance Claims Adjuster Administrative Assistant

BUSINESS EDUCATION CAREER PATHWAYS
2015-2016

LEGAL OFFICE
CIP 22.0301.00

PATHWAY DESCRIPTION: A program that prepares individuals to serve as legal office managers, special assistants, and legal secretaries. Includes instruction in office management, secretarial science, principles of U.S. or Canadian law, legal terminology and documentation, legal research, legal software applications, law office procedures, record-keeping, billing, applicable policies and regulations, and professional standards and ethics.

BEST PRACTICE CORE	EXAMPLE ILP-RELATED CAREER TITLES
Foundational Skills Necessary for Career-Ready Measure: (KOSSA/Industry Certification) *Complete (3) THREE CREDITS from the following:* • 070743 Advanced Computer & Technology Applications OR 070750 Microsoft Office (MOS) • 070881 Legal Office • 060121 Business Law *Complete (1) ONE CREDIT from the following:* • 060111 Business Principles and Applications OR 060112 Digital Literacy OR 110110 Computer Literacy • 060108 Business Education Internship OR 060107 Business Education Co-op	Legal Secretary Court Clerk/Reporter Legal Assistant

BUSINESS EDUCATION CAREER PATHWAYS
2015-2016

MEDICAL BUSINESS OFFICE
CIP 51.0716.00

PATHWAY DESCRIPTION: A program that prepares individuals to perform the duties of special assistants and personal secretaries for practicing physicians and nurses, health care facilities and services administrators, and other health care professionals. Includes instruction in business and medical communications, medical terminology, principles of health care operations, public relations and interpersonal communications, software applications, record-keeping and filing systems, scheduling and meeting planning, applicable policy and regulations, and professional standards and ethics.

BEST PRACTICE CORE	EXAMPLE ILP-RELATED CAREER TITLES
Foundational Skills Necessary for Career-Ready Measure: *(KOSSA/Industry Certification)* *Complete (2-3) TWO-THREE CREDITS:* • 060112 Digital Literacy OR 110110 Computer Literacy OR 060111 Business Principles and Applications • 070743 Advanced Computer & Technology Applications OR 070750 Microsoft Office (MOS) • 070971 Medical Office *Choose (1-2) ONE–TWO CREDITS:* • 060122 Accounting & Finance Foundations OR 060170 Financial Literacy (CTE Credit)/060171 (Math Credit) OR 060172 Mathematics for Business & Industry (CTE Credit)/060190 (Math Credit) OR 070125 Advanced Accounting (Requires Special Teacher Training) • 170131 Medical Terminology (Health Science teacher certification) (.5 credit) • 170141 Emergency Procedures for Healthcare Professionals (Health Science teacher certification) (.5-1 credit) • 060411 Business Management • 060108 Business Education Internship OR 060107 Business Education Co-op	Health Records Professional Medical Secretary Health Care Administrator

BUSINESS EDUCATION CAREER PATHWAYS
2015-2016

BUSINESS & MARKETING EDUCATION
CIP 13.1310.00

PATHWAY DESCRIPTION: A program that prepares individuals to teach vocational sales and marketing operations/marketing and distributive education programs at various educational levels.

BEST PRACTICE CORE	EXAMPLE ILP-RELATED CAREER TITLES
Foundational Skills Necessary for Career-Ready Measure: (KOSSA/Industry Certification) *Complete (2-3) TWO – THREE CREDITS:* • 060112 Digital Literacy OR 110110 Computer Literacy • 060111 Business Principles and Applications OR 080716 Principles of Marketing • 331020 Principles of Teaching *Choose (1-2) ONE – TWO CREDITS from the following:* • 070743 Advanced Computer and Technology Applications • 080311 Business Management (Marketing) OR 060411 Business Management (Business) • 060122 Accounting & Finance Foundations • 080717 Advanced Marketing • 080310 Entrepreneurship OR 060185 Entrepreneurship • 060108 Business Education Internship OR 060107 Business Education Co-op	Business & Marketing Education Teacher Corporate Trainer

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BUSINESS EDUCATION CAREER PATHWAYS
2015-2016

WEB DESIGN FOR BUSINESS
CIP 52.0208.01

PATHWAY DESCRIPTION: A program that prepares individuals to plan, manage, supervise, and market electronic business operations, products, and services provided online via the Internet. Includes instruction in business administration, information technology, information resources management, web design, computer and Internet law and policy, computer privacy and security, e-trading, insurance, electronic marketing, investment capital planning, enterprise operations, personnel supervision, contracting, and product and service networking.

BEST PRACTICE CORE	EXAMPLE ILP-RELATED CAREER TITLES

Foundational Skills Necessary for Career-Ready Measure: (KOSSA/Industry Certification)
 	
Complete (3-4) THREE-FOUR CREDITS:
 	
• 060112 Digital Literacy OR
  110110 Computer Literacy
• 060751 Multimedia Publishing
• 060761 Advanced Multimedia
• 060199 Web Page Design
 	
Choose (1) ONE CREDIT from the following:
 	
• 080716 Principles of Marketing
• 081511 Advertising & Promotions
• 081512 Promotional Applications & Media
• 060108 Business Education Internship OR
  060107 Business Education Co-op
	E-Business Consultant
	
	Website Designer
	
	Social Media Consultant
	
	Telemarketer

COMPLEMENTARY OR ADVANCED COURSEWORK BEYOND BUSINESS PATHWAY(s)
Upon completion of a pathway, additional coursework to enhance student learning is encouraged. Credits earned in Advanced or Complementary Coursework "Beyond the Pathway" may not be substituted for pathway courses in order to achieve Preparatory or Completer status.
• 060196 Leadership Dynamics
• Career Options
• JAG Courses

MARKETING EDUCATION

MARKETING EDUCATION CAREER PATHWAYS
2015-2016

ADVERTISING
CIP 09.0903.00

PATHWAY DESCRIPTION: A program that focuses on the creation, execution, transmission, and evaluation of commercial messages in various media intended to promote and sell products, services, and brands; and that prepares individuals to function as advertising assistants, technicians, and managers. Includes instruction in advertising theory, marketing strategy, advertising design and production methods, campaign methods and techniques, media management, related principles of business management, and applicable technical and equipment skills.

BEST PRACTICE CORE	EXAMPLE ILP-RELATED CAREER TITLES
Foundational Skills Necessary for Career-Ready Measure: (KOSSA/Industry Certification) *Complete (2-3) TWO-THREE CREDITS from the following*: • 080716 Principles of Marketing OR 081411 Retail Marketing • 080717 Advanced Marketing • 081511 Advertising & Promotions *Choose (1-2) ONE-TWO CREDITS from the following:* • 081512 Promotional Applications & Media • 081431 Retail Marketing Management • 080310 Entrepreneurship • 080718 Financial Literacy (CTE Credit)/ 080719 Financial Literacy (Math Credit) OR 080772 Mathematics for Business & Industry (CTE Credit)/080780 Mathematics for Business & Industry (Math Credit) • 080707 Marketing Education Internship OR 080708 Marketing Education Co-op	Marketing Specialist Event Planner Sales Representative Retail Salesperson Advertising Copywriter Advertising Account Executive

MARKETING EDUCATION CAREER PATHWAYS
2015-2016

FASHION MARKETING
CIP 52.1904.00

PATHWAY DESCRIPTION: A program that prepares individuals to perform operations connected with the distribution and sale of apparel and accessories. Includes instruction in wholesaling and retailing, apparel technologies, distribution, customer sales and service skills, and principles of consumer research and sales forecasting.

BEST PRACTICE CORE	EXAMPLE ILP-RELATED CAREER TITLES
Foundational Skills Necessary for Career-Ready Measure: (KOSSA/Industry Certification) *Complete (2-3) TWO-THREE CREDITS from the following:* • 080716 Principles of Marketing OR 081411 Retail Marketing • 080717 Advanced Marketing • 080111 Fashion Marketing *Choose (1-2) ONE-TWO CREDITS from the following:* • 080132 Fashion Marketing Management • 081431 Retail Marketing Management • 080310 Entrepreneurship • 080718 Financial Literacy (CTE Credit)/ 080719 Financial Literacy (Math Credit) OR 080772 Mathematics for Business & Industry (CTE Credit)/080780 Mathematics for Business & Industry (Math Credit) • 080707 Marketing Education Internship OR 080708 Marketing Education Co-op	Fashion Retailer Fashion Designer Marketing Specialist Sales Representative Retail Salesperson Stock Clerk

MARKETING EDUCATION CAREER PATHWAYS 2015-2016

MANAGEMENT/ENTREPRENEURSHIP CIP 52.0701.00

PATHWAY DESCRIPTION: A program that generally prepares individuals to perform development, marketing and management functions associated with owning and operating a business.

BEST PRACTICE CORE	EXAMPLE ILP-RELATED CAREER TITLES

Foundational Skills Necessary for Career-Ready Measure: (KOSSA/Industry Certification)
 	
Complete (2) TWO CREDITS from the following:
 	
- 080716 Principles of Marketing OR
  060111 Business Principles and Applications
 	
- 080311 Business Management (Marketing) OR
  060411 Business Management (Business)
 	
Choose (2) TWO CREDITS from the following:
 	
- 080310 Entrepreneurship
- 080717 Advanced Marketing
- 081511 Advertising & Promotions
- 080718 Financial Literacy (CTE Credit)/080719 Financial Literacy (Math Credit)
- 060122 Accounting and Finance Foundations
- 060112 Digital Literacy OR 110110 Computer Literacy
- 080707 Marketing Education Internship OR
  080708 Marketing Education Co-op
	Entrepreneur
	
	Small Business Owner
	
	Account Manager
	
	Real Estate Agent
	
	Venture Capitalist
	
	Insurance Agent
	
	Association Manager
	
	Quality Controller

MARKETING EDUCATION CAREER PATHWAYS
2015-2016

FINANCIAL SERVICES
CIP 52.1908.00

PATHWAY DESCRIPTION: A program that prepares individuals to perform marketing and operational tasks associated with the provision of personal and financial services. Includes instruction in banking, marketing research, advertising, promotional campaign organization, insurance, media relations, and applicable technical and administrative skills.

BEST PRACTICE CORE	**EXAMPLE ILP-RELATED CAREER TITLES**
Foundational Skills Necessary for Career-Ready Measure: (KOSSA/Industry Certification) *Complete (2) TWO CREDITS from the following:* • 080716 Principles of Marketing • 080410 Financial Services I *Choose (2) TWO CREDITS from the following:* • 080451 Financial Services II • 080717 Advanced Marketing • 081511 Advertising & Promotions • 080310 Entrepreneurship • 080707 Marketing Education Internship <u>OR</u> 080708 Marketing Education Co-op	Bank Marketing Specialist Entrepreneur Bank Manager Bank Teller Sales Representative Loan Officer

MARKETING EDUCATION CAREER PATHWAYS
2015-2016

E-COMMERCE
CIP 52.0208.02

PATHWAY DESCRIPTION: A program that prepares individuals to plan, manage, supervise, and market electronic business operations, products, and services provided online via the Internet. Includes instruction in business administration, information technology, information resources management, web design, computer and Internet law and policy, computer privacy and security, e-trading, insurance, electronic marketing, investment capital planning, enterprise operations, personnel supervision, contracting, and product and service networking.

BEST PRACTICE CORE	**EXAMPLE ILP-RELATED CAREER TITLES**
Foundational Skills Necessary for Career-Ready Measure: (KOSSA/Industry Certification) *Complete (3-4) THREE-FOUR CREDITS from the following:* • 080716 Principles of Marketing • 080717 Advanced Marketing • 080310 Entrepreneurship • 081310 Internet Marketing *Choose (1) ONE CREDIT from the following:* • 081511 Advertising & Promotions • 081512 Promotional Applications & Media • 080707 Marketing Education Internship OR 080708 Marketing Education Co-op	E-Business Consultant Website Designer Social Media Consultant Telemarketer

MARKETING EDUCATION CAREER PATHWAYS
2015-2016

MARKETING
CIP 52.1401.01

PATHWAY DESCRIPTION: A program that generally prepares individuals to undertake and manage the process of developing consumer audiences and moving products from producers to consumers. Includes instruction in buyer behavior and dynamics, principle of marketing research, demand analysis, cost-volume and profit relationships, pricing theory, marketing campaign and strategic planning, market segments, advertising methods, sales operations and management, consumer relations, retailing, and applications to specific products and markets.

BEST PRACTICE CORE	EXAMPLE ILP-RELATED CAREER TITLES
Foundational Skills Necessary for Career-Ready Measure: (KOSSA/Industry Certification) *Complete (2) TWO CREDITS from the following:* • 080716 Principles of Marketing • 080717 Advanced Marketing *Choose (2) TWO CREDITS from the following:* • 081511 Advertising & Promotions • 080310 Entrepreneurship • 081512 Promotional Applications & Media • 081121 Sports & Event Marketing • 080911 Travel & Tourism Marketing • 080111 Fashion Marketing • 080132 Fashion Marketing Management • 081411 Retail Marketing • 081431 Retail Marketing Management • 060112 Digital Literacy • 080707 Marketing Education Internship <u>OR</u> 080708 Marketing Education Co-op	Marketing Specialist

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MARKETING EDUCATION CAREER PATHWAYS
2015-2016

RETAILING/WHOLESALING
CIP 52.1803.00

PATHWAY DESCRIPTION: A program that prepares individuals to perform operations associated with retail sales in a variety of settings. Includes instruction in over-the-counter and other direct sales operations in business settings, basic bookkeeping principles, customer service, team/staff leadership and supervision, floor management, and applicable technical skills.

BEST PRACTICE CORE	EXAMPLE ILP-RELATED CAREER TITLES
Foundational Skills Necessary for Career-Ready Measure: (KOSSA/Industry Certification) *Choose (2-3) **TWO-THREE CREDITS** from the following:* • 081411 Retail Marketing • 081431 Retail Marketing Management • 081511 Advertising & Promotions *Choose (1-2) **ONE-TWO CREDITS** from the following:* • 080716 Principles of Marketing • 080717 Advanced Marketing • 080310 Entrepreneurship • 080718 Financial Literacy (CTE Credit)/080719 Financial Literacy (Math Credit) • 080707 Marketing Education Internship OR 080708 Marketing Education Co-op	Retail Salesperson Retail Buyer Restaurant Manager Cashier Fast Food Worker Technical Sales Representative Shipping and Receiving Clerk

MARKETING EDUCATION CAREER PATHWAYS
2015-2016

HOSPITALITY, TRAVEL, TOURISM & RECREATION
CIP 52.1905.01

PATHWAY DESCRIPTION: A program that prepares individuals to provide direct retail services to hotel and motel clients and customers in a variety of settings. Includes instruction in the principles of hotel/motel operations, customer sales and assistance operations and techniques, telephone operations, and basic office management.

BEST PRACTICE CORE	EXAMPLE ILP-RELATED CAREER TITLES
Foundational Skills Necessary for Career-Ready Measure: (KOSSA/Industry Certification) *Choose (3)THREE CREDITS from the following:* • 080716 Principles of Marketing OR 080910 Principles of Hospitality • 080717 Advanced Marketing • 080911 Travel & Tourism Marketing *Choose (1) ONE CREDIT from the following:* • 080310 Entrepreneurship • 081511 Advertising & Promotions • 081512 Promotional Applications & Media • 081121 Sports & Event Marketing • 081411 Retail Marketing • 080707 Marketing Education Internship OR 080708 Marketing Education Co-op	Hotel Desk Clerk Hotel Manager Concierge Retail Salesperson Retail Buyer Bed and Breakfast Proprietor Tour Guide Travel Agent Amusement and Recreation Attendant

MARKETING EDUCATION CAREER PATHWAYS
2015-2016

SPORTS MARKETING
CIP 31.0504.00

PATHWAY DESCRIPTION: A program that prepares individuals to apply business, coaching and physical education principles to the organization, administration and management of athletic programs and teams, fitness/rehabilitation facilities and health clubs, sport recreation services, and related services. Includes instruction in program planning and development; business and financial management principles; sales, marketing and recruitment; event promotion, scheduling and management; facilities management; public relations; legal aspects of sports; and applicable health and safety standards.

BEST PRACTICE CORE	EXAMPLE ILP-RELATED CAREER TITLES
Foundational Skills Necessary for Career-Ready Measure: (KOSSA/Industry Certification) *Choose (3) THREE CREDITS from the following:* • 080716 Principles of Marketing • 080717 Advanced Marketing • 081121 Sports & Event Marketing *Choose (1) ONE CREDIT from the following:* • 080310 Entrepreneurship • 081511 Advertising & Promotions • 081512 Promotional Applications & Media • 081411 Retail Marketing • 081431 Retail Marketing Management • 080707 Marketing Education Internship OR 080708 Marketing Education Co-op	Sports Marketer Recruiter Association Manager Volunteer Manager

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MARKETING EDUCATION CAREER PATHWAYS 2015-2016	
BUSINESS/MARKETING EDUCATION **CIP 13.1310.00**	
PATHWAY DESCRIPTION: A program that prepares individuals to teach career and technical education sales and marketing operations/marketing and distributive education programs at various educational levels.	
BEST PRACTICE CORE	**EXAMPLE ILP-RELATED CAREER TITLES**

Foundational Skills Necessary for Career-Ready Measure:
(KOSSA/Industry Certification)
 	
Complete (2-3) TWO – THREE CREDITS from the following:
 	
• 060112 Digital Literacy/110110 Computer Literacy
• 080716 Principles of Marketing <u>OR</u>
  060111 Business Principles and Applications
• 331020 Principles of Teaching
 	
Choose (1-2) ONE – TWO CREDITS from the following:
 	
• 080717 Advanced Marketing
• 080310 Entrepreneurship
• 070743 Advanced Computer and Technology Applications
• 080311 Business Management (Marketing) <u>OR</u>
  060411 Business Management (Business)
• 060122 Accounting & Finance Foundations
• 080707 Marketing Education Internship <u>OR</u>
  080708 Marketing Education Co-op
	Business & Marketing Education Teacher
	
	Corporate Trainer

COMPLEMENTARY OR ADVANCED COURSEWORK BEYOND MARKETING PATHWAY(s)
Upon completion of a pathway, additional coursework to enhance student learning is encouraged. Credits earned in Advanced or Complementary Coursework "Beyond the Pathway" may not be substituted for pathway courses in order to achieve Preparatory or Completer status.
• 080799 Leadership Dynamics
• Career Options
• JAG Courses

CONSTRUCTION TECHNOLOGY

AIR CONDITIONING TECHNOLOGY CAREER PATHWAYS
2015-2016

DOMESTIC AIR CONDITIONER AND FURNACE INSTALLER
CIP 47.0201.03

PATHWAY DESCRIPTION: A program that prepares individuals to apply technical knowledge and skills to repair, install, service and maintain the operating condition of heating, air conditioning, and refrigeration systems. Includes instruction in diagnostic techniques, the use of testing equipment and the principles of mechanics, electricity, and electronics as they relate to the repair of heating, air conditioning and refrigeration systems.

BEST PRACTICE CORE	EXAMPLE ILP-RELATED CAREER TITLES

Foundational Skills Necessary for Career-Ready Measure: *(KOSSA/Industry Certification)*
 	
     Complete (2) TWO CREDITS from the following:
 	
 • 460828 Refrigeration Fundamentals
 • 480812 Heat Load/Duct Design
 	
     Choose (2) TWO CREDITS from the following:
 	
 • 460826 Electrical Components
 • 460824 Cooling and Dehumidification
 • 460820 Heating and Humidification
 • 460801 Heat Pump Application
 • 460880 Co-op I (Air Cond) <u>OR</u> 460883 Internship (Air Cond)
	Construction Laborer
	
	 Construction Manager
	
	 Construction Tradesperson
	
	 Environmental Engineer
	
	 Solar Energy Tech
	
	 Home Inspector
	
	 Energy Auditor

AIR CONDITIONING TECHNOLOGY CAREER PATHWAYS 2015-2016

REFRIGERATION MECHANIC
CIP 47.0201.04

PATHWAY DESCRIPTION: A program that prepares individuals to apply technical knowledge and skills to repair, install, service and maintain the operating condition of heating, air conditioning, and refrigeration systems. Includes instruction in diagnostic techniques, the use of testing equipment and the principles of mechanics, electricity, and electronics as they relate to the repair of heating, air conditioning and refrigeration systems.

BEST PRACTICE CORE	EXAMPLE ILP-RELATED CAREER TITLES

Foundational Skills Necessary for Career-Ready Measure: (KOSSA/Industry Certification)
 	
   Complete (3) THREE CREDITS:
 	
- 460828 Refrigeration Fundamentals
- 460817 HVAC Electricity
- 460845 Ice Machines
 	
   Choose (1) ONE CREDIT from the following:
 	
- 460826 Electrical Components
- 470211 Commercial Refrigeration
- 460824 Cooling and Dehumidification
- 460880 Co-op I (Air Cond) <u>OR</u> 460883 Internship (Air Cond)
	Construction Laborer
	
	Construction Manager
	
	Construction Tradesperson
	
	Environmental Engineer
	
	Solar Energy Tech
	
	Home Inspector
	
	Energy Auditor

AIR CONDITIONING TECHNOLOGY CAREER PATHWAYS 2015-2016

ENVIRONMENTAL CONTROL SYSTEM SERVICER ASSISTANT
CIP 47.0201.05

PATHWAY DESCRIPTION: A program that prepares individuals to apply technical knowledge and skills to repair, install, service and maintain the operating condition of heating, air conditioning, and refrigeration systems. Includes instruction in diagnostic techniques, the use of testing equipment and the principles of mechanics, electricity, and electronics as they relate to the repair of heating, air conditioning and refrigeration systems.

BEST PRACTICE CORE	EXAMPLE ILP-RELATED CAREER TITLES
Foundational Skills Necessary for Career-Ready Measure: (KOSSA/Industry Certification) *Complete (1) ONE CREDIT:* • 460828 Refrigeration Fundamentals *Choose (3) THREE CREDITS from the following:* • 460817 HVAC Electricity • 460826 Electrical Components • 460824 Cooling and Dehumidification • 460801 Heat Pump Application • 460820 Heating and Humidification • 460880 Co-op I (Air Cond) <u>OR</u> 460883 Internship (Air Cond)	Construction Laborer Construction Manager Construction Tradesperson Environmental Engineer Solar Energy Tech Home Inspector Energy Auditor

COMPLEMENTARY OR ADVANCED COURSEWORK BEYOND AIRCONDITIONING TECHNOLOGY PATHWAY(s)
Upon completion of a pathway, additional coursework to enhance student learning is encouraged. Credits earned in Advanced or Complementary Coursework "Beyond the Pathway" may not be substituted for pathway courses in order to achieve Preparatory or Completer status.
460806 Green Awareness/Energy Management
499930 Industrial Safety *(.5 credit)*
460846 Journeyman Preparation *(.5 credit)*
460804 Residential Energy Auditor Prep
460847 Sheet Metal Fabrication
460801 Heat Pump Application
Career Options
JAG Courses

BUILDING AND APARTMENT MAINTENANCE
CAREER PATHWAYS
2015-2016

RESIDENTIAL MAINTENANCE CARPENTER ASSISTANT
CIP 46.0401.01

PATHWAY DESCRIPTION: A program that prepares individuals to apply technical knowledge and skills to keep a building functioning, and to service a variety of structures including commercial and industrial buildings and mobile homes. Includes instruction in the basic maintenance and repair skills required to service building systems, such as air conditioning, heating, plumbing, electrical, major appliances, and other mechanical systems.

BEST PRACTICE CORE	EXAMPLE ILP-RELATED CAREER TITLES
Foundational Skills Necessary for Career-Ready Measure: (KOSSA/Industry Certification) *Complete (2) TWO CREDITS:* • 460241 Introduction to Building & Apartment Maintenance • 460220 Residential Maintenance Carpentry *Choose (2) TWO CREDITS from the following:* • 460818 Residential HVAC Maintenance • 460222 Residential Interior Maintenance • 460114 Residential Maintenance Masonry • 460333 Residential Maintenance Wiring • 460513 Residential Maintenance Plumbing • 460229 Co-op I (BAM) <u>OR</u> 460232 Internship (BAM)	Bricklayer/Stonemason Concrete Mason Construction Laborer Construction Manager Construction Tradesperson Property Manager

BUILDING AND APARTMENT MAINTENANCE CAREER PATHWAYS 2015-2016

BRICKLAYER ASSISTANT - BAM
CIP 46.0101.01

PATHWAY DESCRIPTION: A program that prepares individuals to apply technical knowledge and skills to keep a building functioning, and to service a variety of structures including commercial and industrial buildings and mobile homes. Includes instruction in the basic maintenance and repair skills required to service building systems, such as air conditioning, heating, plumbing, electrical, major appliances, and other mechanical systems.

BEST PRACTICE CORE	EXAMPLE ILP-RELATED CAREER TITLES

Foundational Skills Necessary for Career-Ready Measure: (KOSSA/Industry Certification)
 	
    *Complete **(4) FOUR CREDITS:***
 	
• 460112 Introductory Masonry
• 460116 Intermediate Masonry
• 460223 Residential Maintenance Masonry
• 499930 Industrial Safety* <u>AND</u> 499920 Basic Blueprint Reading*
• 460229 Co-op I (BAM) <u>OR</u> 460232 Internship (BAM)
 	
    Note: (*) Indicates half-credit course
	Bricklayer/Stonemason
	
	Concrete Mason
	
	Construction Laborer
	
	Construction Manager
	
	Construction Tradesperson
	
	Property Manager

BUILDING AND APARTMENT MAINTENANCE
CAREER PATHWAYS
2015-2016

ENVIRONMENTAL CONTROL SYSTEM SERVICER ASSISTANT
CIP 47.0201.05

PATHWAY DESCRIPTION: A program that prepares individuals to apply technical knowledge and skills to keep a building functioning, and to service a variety of structures including commercial and industrial buildings and mobile homes. Includes instruction in the basic maintenance and repair skills required to service building systems, such as air conditioning, heating, plumbing, electrical, major appliances, and other mechanical systems.

BEST PRACTICE CORE	EXAMPLE ILP-RELATED CAREER TITLES

Foundational Skills Necessary for Career-Ready Measure: (KOSSA/Industry Certification)
 	
    Complete (1) ONE CREDIT:
 	
- 460828 Refrigeration Fundamentals
 	
    Choose (3) THREE CREDITS from the following:
 	
- 460817 HVAC Electricity
- 460826 Electrical Components
- 460824 Cooling and Dehumidification
- 460801 Heat Pump Application
- 460820 Heating and Humidification
- 460229 Co-op I (BAM) OR 460232 Internship (BAM)
	Construction Laborer
	
	Construction Manager
	
	Construction Tradesperson
	
	Environmental Engineer
	
	Solar Energy Tech
	
	Home Inspector
	
	Energy Auditor

COMPLEMENTARY OR ADVANCED COURSEWORK BEYOND
BUILDING & APARTMENT MAINTENANCE (BAM) PATHWAY(s)

Upon completion of a pathway, additional coursework to enhance student learning is encouraged.

Credits earned in Advanced or Complementary Coursework "Beyond the Pathway" may not be substituted for pathway courses in order to achieve Preparatory or Completer status.

499920 Basic Blueprint Reading
499925 Basic Troubleshooting
499930 Industrial Safety *(.5 credit)*
460804 Residential Energy Auditor Prep
460847 Sheet Metal Fabrication
Career Options
JAG Courses

CONSTRUCTION CARPENTRY TECHNOLOGY
CAREER PATHWAYS
2015-2016

CARPENTER ASSISTANT
CIP 46.0201.01

PATHWAY DESCRIPTION: A program that prepares individuals to apply technical knowledge and skills to lay out, cut, fabricate, erect, install, and repair wooden structures and fixtures, using hand and power tools. Includes instruction in technical mathematics, framing, construction materials and selection, job estimating, blueprint reading, foundations and roughing-in, finish carpentry techniques, and applicable codes and standards.

BEST PRACTICE CORE	EXAMPLE ILP-RELATED CAREER TITLES

Foundational Skills Necessary for Career-Ready Measure: (KOSSA/Industry Certification)
 	
    Complete (2) TWO CREDITS:
 	
• 460201 Introduction to Construction Technology
• 460212 Floor and Wall Framing
 	
Choose (2) TWO CREDITS from the following:
 	
• 460213 Ceiling and Roof Framing
• 460217 Construction Prints* <u>AND</u> 499930 Industrial Safety*
• 460214 Site Layout and Foundations
• 460242 Co-op (Carpentry) <u>OR</u> 460245 Internship (Carpentry)
 	
    Note: (*) Indicates half-credit course
	Carpenter
	
	Construction Laborer
	
	Construction Manager
	
	Construction Tradesperson
	
	Drywall Installer

CONSTRUCTION CARPENTRY TECHNOLOGY CAREER PATHWAYS 2015-2016

CONSTRUCTION FORMS ASSISTANT
CIP 46.0201.03

PATHWAY DESCRIPTION: A program that prepares individuals to apply technical knowledge and skills to lay out, cut, fabricate, erect, install, and repair wooden structures and fixtures, using hand and power tools. Includes instruction in technical mathematics, framing, construction materials and selection, job estimating, blueprint reading, foundations and roughing-in, finish carpentry techniques, and applicable codes and standards.

BEST PRACTICE CORE	EXAMPLE ILP-RELATED CAREER TITLES

Foundational Skills Necessary for Career-Ready Measure: (KOSSA/Industry Certification)
 	
   Complete (2) TWO CREDITS:
 	
• 460201 Introduction to Construction Technology
• 460218 Construction Forms
 	
   Choose (2) TWO CREDITS from the following:
 	
• 460212 Floor and Wall Framing
• 460213 Ceiling and Roof Framing
• 460214 Site Layout and Foundations
• 460242 Co-op (Carpentry) <u>OR</u> 460245 Internship (Carpentry)
	Carpenter
	
	Construction Laborer
	
	Construction Manager
	
	Construction Tradesperson
	
	Drywall Installer
	
	Flooring Installer

CONSTRUCTION CARPENTRY TECHNOLOGY
CAREER PATHWAYS
2015-2016

FINISH CARPENTERS ASSISTANT
CIP 46.0201.05

PATHWAY DESCRIPTION: A program that prepares individuals to apply technical knowledge and skills to lay out, cut, fabricate, erect, install, and repair wooden structures and fixtures, using hand and power tools. Includes instruction in technical mathematics, framing, construction materials and selection, job estimating, blueprint reading, foundations and roughing-in, finish carpentry techniques, and applicable codes and standards.

BEST PRACTICE CORE	EXAMPLE ILP-RELATED CAREER TITLES

Foundational Skills Necessary for Career-Ready Measure: (KOSSA/Industry Certification)
 	
   Complete (3) THREE CREDITS:
 	
 • 460201 Introduction to Construction Technology
 • 460212 Floor and Wall Framing
 • 460219 Exterior and Interior Finish
 	
Choose (1) ONE CREDIT from the following:
 	
 • 460209 Cabinet Construction and Installation
 • 460217 Construction Prints* <u>AND</u> 499930 Industrial Safety*
 • 460242 Co-op (Carpentry) <u>OR</u> 460245 Internship (Carpentry)
 	
   Note: (*) Indicates half-credit course
	Carpenter
	
	Construction Laborer
	
	Construction Manager
	
	Construction Tradesperson
	
	Flooring Installer
	
	Furniture Finisher
	
	Production Woodworker

CONSTRUCTION CARPENTRY TECHNOLOGY CAREER PATHWAYS 2015-2016

RESIDENTIAL CARPENTER ASSISTANT
CIP 46.0201.02

PATHWAY DESCRIPTION: A program that prepares individuals to apply technical knowledge and skills to lay out, cut, fabricate, erect, install, and repair wooden structures and fixtures, using hand and power tools. Includes instruction in technical mathematics, framing, construction materials and selection, job estimating, blueprint reading, foundations and roughing-in, finish carpentry techniques, and applicable codes and standards.

BEST PRACTICE CORE	EXAMPLE ILP-RELATED CAREER TITLES
Foundational Skills Necessary for Career-Ready Measure: (KOSSA/Industry Certification) *Complete (2) TWO CREDITS:* • 460201 Introduction to Construction Technology • 460212 Floor and Wall Framing *Choose (2) TWO CREDITS from the following:* • 460213 Ceiling and Roof Framing • 460214 Site Layout and Foundations • 460219 Exterior and Interior Finish • 460209 Cabinet Construction and Installation • 460242 Co-op (Carpentry) OR 460245 Internship (Carpentry)	Carpenter Construction Laborer Construction Manager Construction Tradesperson Drywall Installer Flooring Installer Production Woodworker

CONSTRUCTION CARPENTRY TECHNOLOGY CAREER PATHWAYS 2015-2016

CARPENTRY -- TRACK
CIP 46.0201.99

PATHWAY DESCRIPTION: A program that prepares individuals to apply technical knowledge and skills to lay out, cut, fabricate, erect, install, and repair wooden structures and fixtures, using hand and power tools. Includes instruction in technical mathematics, framing, construction materials and selection, job estimating, blueprint reading, foundations and roughing-in, finish carpentry techniques, and applicable codes and standards. Each student must pass an End of Program assessment and complete 8 OSHA Safety modules listed on the "Track" website (http://www.laborcabinetetrain.ky.gov/track.html) to be eligible to receive credit and preference in an organization that sponsors a registered apprenticeship program. Course credit will be considered at the discretion of training provider (grades and attendance can be taken into consideration).

BEST PRACTICE CORE	EXAMPLE ILP-RELATED CAREER TITLES

Foundational Skills Necessary for Career-Ready Measure: (KOSSA/Industry Certification)
 	
    Complete (4) FOUR CREDITS:
 	
  • 460201 Introduction to Construction Technology
  • 460212 Floor and Wall Framing
  • 460213 Ceiling and Roof Framing
  • 460214 Site Layout and Foundations
	Carpenter
	
	Construction
	    Tradesperson

The Tech Ready Apprentices for Careers in Kentucky (*TRACK*) pre-apprenticeship program is a partnership between The Kentucky Department of Education's Office of Career and Technical Education and The Kentucky Labor Cabinet to provide pre-apprenticeship career pathway opportunities into registered apprenticeship programs to secondary students. This is a business and industry driven program to create a pipeline for students to enter post-secondary apprenticeship training.

Upon successful completion, the student will be awarded an industry certification by the employer or training organization through The Kentucky Labor Cabinet and all on-the-job hours worked will be counted towards the apprenticeship, if applicable. The certification will also count towards the local school district's college and career ready accountability index.

The specifics of the TRACK program vary and interested parties will need to confer with the Office of Career and Technical Education for the implementation process. There are no costs involved except wages for the student employee. The employer must have a registered apprenticeship program with The Kentucky Labor Cabinet. For more information, please refer to:
http://education.ky.gov/CTE/cter/Pages/TRACK.aspx

As career pathways continue to expand, the ultimate rationale is that if an employer is willing to implement a Registered Apprenticeship program, a pipeline at the secondary level can be developed utilizing the TRACK program.

COMPLEMENTARY OR ADVANCED COURSEWORK BEYOND CONSTRUCTION/CARPENTRY TECHNOLOGY PATHWAY(s)
Upon completion of a pathway, additional coursework to enhance student learning is encouraged. Credits earned in Advanced or Complementary Coursework "Beyond the Pathway" may not be substituted for pathway courses in order to achieve Preparatory or Completer status.
• Career Options
• JAG Courses

ELECTRICAL TECHNOLOGY CAREER PATHWAYS
2015-2016

ELECTRICIAN ASSISTANT
CIP 46.0302.01

PATHWAY DESCRIPTION: A program that prepares individuals to apply technical knowledge and skills to install, operate, maintain, and repair electric apparatus and systems such as residential, commercial, and industrial electric-power wiring; and DC and AC motors, controls, and electrical distribution panels. Includes instruction in the principles of electronics and electrical systems, wiring, power transmission, safety, industrial and household appliances, job estimation, electrical testing and inspection, and applicable codes and standards.

BEST PRACTICE CORE	EXAMPLE ILP-RELATED CAREER TITLES

Foundational Skills Necessary for Career-Ready Measure: *(KOSSA/Industry Certification)*
 	
     Complete (4) FOUR OR MORE CREDITS from the following:
 	
 • 460312 Electrical Construction I
 • 460313 Electrical Construction II
 • 460316 Circuits I
 • 460319 Circuits II
 • 499930 Industrial Safety* AND 460339 National Electrical Code*
 • 460345 Co-op (Electrical) OR 460348 Internship (Electrical)
 	
     Note: (*) Indicates half-credit course
	Construction Laborer
	
	 Construction Manager
	
	 Construction Tradesperson
	
	 Electrical Engineer
	
	 Electrical Engineering Tech
	
	 Electrician

ELECTRICAL TECHNOLOGY CAREER PATHWAYS 2015-2016

INDUSTRIAL ELECTRICIAN ASSISTANT
CIP 46.0302.02

PATHWAY DESCRIPTION: A program that prepares individuals to apply technical knowledge and skills to install, operate, maintain, and repair electric apparatus and systems such as residential, commercial, and industrial electric-power wiring; and DC and AC motors, controls, and electrical distribution panels. Includes instruction in the principles of electronics and electrical systems, wiring, power transmission, safety, industrial and household appliances, job estimation, electrical testing and inspection, and applicable codes and standards.

BEST PRACTICE CORE	EXAMPLE ILP-RELATED CAREER TITLES

Foundational Skills Necessary for Career-Ready Measure: (KOSSA/Industry Certification)
 	
    Complete (4) FOUR OR MORE CREDITS:
 	
• 460312 Electrical Construction I
• 460316 Circuits I
• 460319 Circuits II
• 460331 Electrical Motor Controls
• 499930 Industrial Safety* AND 460339 National Electrical Code*
• 460345 Co-op (Electrical) OR 460348 Internship (Electrical)
 	
    Note: (*) Indicates half-credit course
	Construction Laborer
	
	Construction Manager
	
	Construction Tradesperson
	
	Electrical Engineer
	
	Electrical Engineering Tech
	
	Electrician

ELECTRICAL TECHNOLOGY CAREER PATHWAYS
2015-2016

RESIDENTIAL ELECTRICIAN
CIP 46.0302.03

PATHWAY DESCRIPTION: A program that prepares individuals to apply technical knowledge and skills to install, operate, maintain, and repair electric apparatus and systems such as residential, commercial, and industrial electric-power wiring; and DC and AC motors, controls, and electrical distribution panels. Includes instruction in the principles of electronics and electrical systems, wiring, power transmission, safety, industrial and household appliances, job estimation, electrical testing and inspection, and applicable codes and standards.

BEST PRACTICE CORE	EXAMPLE ILP-RELATED CAREER TITLES
Foundational Skills Necessary for Career-Ready Measure: *(KOSSA/Industry Certification)* *Complete (4) FOUR OR MORE CREDITS:* • 460312 Electrical Construction I • 499925 Basic Troubleshooting • 460316 Circuits I • 499930 Industrial Safety* <u>AND</u> 460339 National Electrical Code* • 460345 Co-op (Electrical) <u>OR</u> 460348 Internship (Electrical) Note: (*) Indicates half-credit course	Construction Laborer Construction Manager Construction Tradesperson Electrical Engineer Electrical Engineering Tech Electrician

CONSTRUCTION - ELECTRICAL -- TRACK
CIP 46.0302.99

PATHWAY DESCRIPTION: A program that prepares individuals to apply technical knowledge and skills to lay out, cut, fabricate, erect, install, and repair wooden structures and fixtures, using hand and power tools. Includes instruction in technical mathematics, framing, construction materials and selection, job estimating, blueprint reading, foundations and roughing-in, finish carpentry techniques, and applicable codes and standards. Each student must pass an End of Program assessment and complete 8 OSHA Safety modules listed on the "Track" website (http://www.laborcabinetetrain.ky.gov/track.html) to be eligible to receive credit and preference in an organization that sponsors a registered apprenticeship program. Course credit will be considered at the discretion of training provider (grades and attendance can be taken into consideration).

BEST PRACTICE CORE	EXAMPLE ILP-RELATED CAREER TITLES
Foundational Skills Necessary for Career-Ready Measure: (KOSSA/Industry Certification) 　　*Complete **(4) FOUR CREDITS:*** • 460312 Electrical Construction I • 460313 Electrical Construction II • 460316 Circuits I • 460319 Circuits II	Electrical Engineer Electrical Engineering Tech Electrician

The Tech Ready Apprentices for Careers in Kentucky (*TRACK*) pre-apprenticeship program is a partnership between The Kentucky Department of Education's Office of Career and Technical Education and The Kentucky Labor Cabinet to provide pre-apprenticeship career pathway opportunities into registered apprenticeship programs to secondary students. This is a business and industry driven program to create a pipeline for students to enter post-secondary apprenticeship training.

Upon successful completion, the student will be awarded an industry certification by the employer or training organization through The Kentucky Labor Cabinet and all on-the-job hours worked will be counted towards the apprenticeship, if applicable. The certification will also count towards the local school district's college and career ready accountability index.

The specifics of the TRACK program vary and interested parties will need to confer with the Office of Career and Technical Education for the implementation process. There are no costs involved except wages for the student employee. The employer must have a registered apprenticeship program with The Kentucky Labor Cabinet. For more information, please refer to: http://education.ky.gov/CTE/cter/Pages/TRACK.aspx

As career pathways continue to expand, the ultimate rationale is that if an employer is willing to implement a Registered Apprenticeship program, a pipeline at the secondary level can be developed utilizing the TRACK program.

COMPLEMENTARY OR ADVANCED COURSEWORK BEYOND ELECRICAL TECHNOLOGY CAREER PATHWAY(S)
Upon completion of a pathway, additional coursework to enhance student learning is encouraged. Credits earned in Advanced or Complementary Coursework "Beyond the Pathway" may not be substituted for pathway courses in order to achieve Preparatory or Completer status.
499920 Basic Blueprint Reading
460342 Renewable Energy Systems
460323 Rotating Machinery
460325 Rotating Machinery Electrical Motor Controls
460377 Special Problems – Electrical Technology
460340 Sustainable Energy Systems
460305 Transformers
Career Options
JAG Courses

MASONRY TECHNOLOGY CAREER PATHWAYS
2015-2016

BRICKLAYER ASSISTANT
CIP 46.0101.01

PATHWAY DESCRIPTION: A program that prepares individuals to apply technical knowledge and skills in the laying and/or setting of exterior brick, concrete block, hard tile, marble and related materials, using trowels, levels, hammers, chisels, and other hand tools. Includes instruction in technical mathematics, blueprint reading, structural masonry, decorative masonry, foundations, reinforcement, mortar preparation, cutting and finishing, and applicable codes and standards.

BEST PRACTICE CORE	EXAMPLE ILP-RELATED CAREER TITLES

Foundational Skills Necessary for Career-Ready Measure: *(KOSSA/Industry Certification)*
 	
    Complete (4) FOUR CREDITS:
 	
  • 460112 Introductory Masonry
  • 460116 Intermediate Masonry
  • 499930 Industrial Safety* <u>AND</u> 499920 Basic Blueprint Reading*
  • 460180 Co-op (Masonry) <u>OR</u>
    460183 Internship (Masonry)
 	
    Note: (*) Indicates half-credit course
	Bricklayer/Stonemason
	
	Concrete Mason
	
	Construction Laborer
	
	Construction Manager
	
	Construction Tradesperson

MASONRY TECHNOLOGY CAREER PATHWAYS
2015-2016

MASON APPRENTICE
CIP 46.0101.02

PATHWAY DESCRIPTION: A program that prepares individuals to apply technical knowledge and skills in the laying and/or setting of exterior brick, concrete block, hard tile, marble and related materials, using trowels, levels, hammers, chisels, and other hand tools. Includes instruction in technical mathematics, blueprint reading, structural masonry, decorative masonry, foundations, reinforcement, mortar preparation, cutting and finishing, and applicable codes and standards.

BEST PRACTICE CORE	EXAMPLE ILP-RELATED CAREER TITLES
Foundational Skills Necessary for Career-Ready Measure: (KOSSA/Industry Certification) *Complete (4) FOUR OR MORE CREDITS:* - 460112 Introductory Masonry - 460116 Intermediate Masonry - 460119 Concrete Finishing - 460180 Co-op (Masonry) OR 460183 Internship (Masonry) - 460113 Advanced Masonry - 460117 Anchors and Reinforcement	Bricklayer/Stonemason Concrete Mason Construction Laborer Construction Manager Construction Tradesperson

COMPLEMENTARY OR ADVANCED COURSEWORK BEYOND MASONRY TECHNOLOGY CAREER PATHWAY(S)
Upon completion of a pathway, additional coursework to enhance student learning is encouraged. Credits earned in Advanced or Complementary Coursework "Beyond the Pathway" may not be substituted for pathway courses in order to achieve Preparatory or Completer status.
460109 Basic Bricklaying
460110 Basic Blocklaying
460118 Fireplace Construction
460179 Special Problems (Masonry)
Career Options
JAG Courses

PLUMBING TECHNOLOGY
CAREER PATHWAYS
2015-2016

PLUMBER ASSISTANT
CIP 46.0501.02

PATHWAY DESCRIPTION: A program that prepares individuals to practice as licensed plumbers by applying technical knowledge and skills to lay out, assemble, install, and maintain piping fixtures and systems for steam, natural gas, oil, hot water, heating, cooling, drainage, lubricating, sprinkling, and industrial processing systems in home and business environments. Includes instruction in source determination, water distribution, waste removal, pressure adjustment, basic physics, technical mathematics, blueprint reading, pipe installation, pumps, welding and soldering, plumbing inspection, and applicable codes and standards.

BEST PRACTICE CORE	EXAMPLE ILP-RELATED CAREER TITLES
Foundational Skills Necessary for Career-Ready Measure: (KOSSA/Industry Certification) *Complete (2) TWO CREDITS:* • 460511 Introduction to Plumbing • 460513 Basic Plumbing Skills *Choose (2) TWO CREDITS from the following:* • 460512 Plumbing Systems • 460514 Bathroom Install • 460515 Kitchen Install • 460518 Co-op (Plumbing) <u>OR</u> 460521 Internship (Plumbing)	Construction Laborer Construction Manager Construction Tradesperson Plumber Pipefitter

COMPLEMENTARY OR ADVANCED COURSEWORK BEYOND PLUMBING TECHNOLOGY CAREER PATHWAY(S)
Upon completion of a pathway, additional coursework to enhance student learning is encouraged. Credits earned in Advanced or Complementary Coursework "Beyond the Pathway" may not be substituted for pathway courses in order to achieve Preparatory or Completer status.
• 499930 Industrial Safety (.5 credit)
• Career Options
• JAG Courses

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ENGINEERING & TECHNOLOGY EDUCATION

ENGINEERING & TECHNOLOGY EDUCATION
CAREER PATHWAYS
2015-2016

MANUFACTURING ENGINEERING TECHNOLOGY TECHNICIAN
CIP 15.0613.00

PATHWAY DESCRIPTION: A program that prepares individuals to apply basic engineering principles, mathematical and scientific principles to the design, development and operational evaluation of integrated systems for managing industrial production processes, just-in-time manufacturing, industrial quality control, automation, cost analysis, and technical skills to the identification and resolution of production problems in the manufacture of products. Includes instruction in machine operations, production line operations, engineering analysis, systems analysis, instrumentation, physical controls, automation, computer-aided manufacturing (CAM), manufacturing planning, quality control, and informational infrastructure.

BEST PRACTICE CORE	EXAMPLE ILP-RELATED CAREER TITLES

Foundational Skills Necessary for Career-Ready Measure: *(KOSSA/Industry Certification)*
 	
 *Complete **(2) TWO CREDITS:** from the following:*
 	
 • 210107 Foundations of Technology
 • 210232 Basic Electricity & Energy Systems
 • 210224 Principles of Engineering & Technology
 • 210225 Introduction to Manufacturing & Manufacturing Systems
 • 210230 Fundamentals of Mechatronics
 • 210136 Advanced Technology for Design & Productions **(SREB)**
 • 210137 Systems of Advanced Technology **(SREB)**
 	
 *Choose **(2) TWO CREDITS** from the Following:*
 	
 • 210134 Material Process
 • 210135 Production Technology
 • 210221 Fundamentals of Engineering Design I
 • 210238 Foundations of Robotics
 • 210290 Special Topics in Engineering
 • 210330 Engineering & Technology Co-Op <u>OR</u>
   210331 Engineering & Technology Internship
 	
     Note: (SREB) courses require an agreement between
     the Southern Region Education Board and the District.
	Engineering Technology Instructor
	
	 Production Woodworker
	
	 Manufacturing Manager
	
	 Manufacturing Worker
	
	 Industrial Engineer
	
	 Electronics Assembler
	
	 Industrial Engineer
	
	 Industrial Technician
	
	 Quality Controller

ENGINEERING & TECHNOLOGY EDUCATION CAREER PATHWAYS
2015-2016

PROJECT LEAD THE WAY (PLTW) ENGINEERING
CIP 14.0101.01

PATHWAY DESCRIPTION: A program that generally prepares individuals to apply mathematical and scientific principles to solve a wide variety of practical problems in industry, social organization, public works, and commerce. Includes instruction in undifferentiated and individualized programs in engineering.

BEST PRACTICE CORE	EXAMPLE ILP-RELATED CAREER TITLES
Foundational Skills Necessary for Career-Ready Measure: (KOSSA/Industry Certification) *Complete (2) TWO CREDITS:* • 219901 Introduction to Engineering Design *(PLTW)* • 219902 Principles of Engineering *(PLTW)* *Choose (2) TWO CREDITS from the following:* • 219903 Digital Electronics *(PLTW)* • 219904 Computer Integrated Manufacturing *(PLTW)* • 219905 Civil Engineering & Architecture *(PLTW)* • 219906 Engineering Design & Development *(PLTW)* • 219907 Aerospace Engineering *(PLTW)* • 219908 Biotechnical Engineering *(PLTW)* • 219917 Special Topics in Engineering *(PLTW)* • 110730 Computer Science & Software Engineering *(PLTW)* • 210330 Engineering & Technology Co-Op <u>OR</u> 210331 Engineering & Technology Internship Note: (PLTW) courses require an agreement between Project Lead The Way and the Local School District please see the link to PLTW Program Requirements for further information.	Engineering Technology Instructor Production Woodworker Manufacturing Manager Manufacturing Worker Electronics Assembler Industrial Engineer Industrial Technician Quality Controller Architect Aerospace Engineer Interior Designer Nuclear Engineer Electrical Engineer Electronics Engineer Civil Engineer Computer Hardware Engineer

ENGINEERING & TECHNOLOGY EDUCATION
CAREER PATHWAYS
2015-2016

AERONAUTICS & AEROSPACE
Flight & Aeronautics
CIP 49.0102.00

PATHWAY DESCRIPTION: Allows student to complete what is considered the first phase of aviation training leading to a commercial pilot license. They will gain technical knowledge and skills to the flying and/or navigation of commercial passenger and cargo, agricultural, public service, corporate and fixed wing aircraft. Includes instruction in principles of aircraft design and performance, aircraft flight systems and controls, flight crew operations and procedures, radio communications, navigation procedures and systems, airways safety and traffic regulations, and governmental rules and regulations pertaining to piloting aircraft.

BEST PRACTICE CORE	EXAMPLE ILP-RELATED CAREER TITLES

Foundational Skills Necessary for Career-Ready Measure: (KOSSA/Industry Certification)
 	
    Complete (4) FOUR CREDITS:
 	
 • 210226 Introduction to Aerospace
 • 210233 Fundamentals of Aviation Science I
 • 210234 Aviation Science II
 • 210237 Introduction to Commercial Aviation Science
 • 210330 Engineering & Technology Co-Op <u>OR</u>
    210331 Engineering & Technology Internship
	Aerospace Engineer
	
	 Aerospace Technician
	
	 Private Pilot
	
	 Commercial Pilot
	
	 Crew Chief
	
	 Flight Instructor
	
	 Commercial Aviator
	
	 Military Aviator
	
	 Military Navigator

ENGINEERING & TECHNOLOGY EDUCATION
CAREER PATHWAYS
2015-2016

AERONAUTICS & AEROSPACE
Aeronautical Engineering
CIP 14.0201.01

PATHWAY DESCRIPTION: A program that prepares individuals to apply basic engineering principles and technical skills in support of engineers and other professionals engaged in developing, manufacturing and testing aircraft, spacecraft and their systems. The program provides students with a foundation of knowledge and technically oriented experiences in the study of Aerospace Technologies, its effect upon our lives, and the choosing of an occupation. Includes instruction in aircraft/spacecraft systems technology, design and development testing, prototype and operational testing, inspection and maintenance procedures, instrument calibration, test equipment operation and maintenance, and report preparation.

BEST PRACTICE CORE	EXAMPLE ILP-RELATED CAREER TITLES
Foundational Skills Necessary for Career-Ready Measure: (KOSSA/Industry Certification) 　　*Complete **(4) FOUR CREDITS:*** - 210226 Introduction to Aerospace - 210233 Fundamentals of Aviation Science I - 210229 Fundamentals of Aeronautical Engineering <u>OR</u> 219907 Aerospace Engineering ***(PLTW)*** - 210290 Special Topics in Engineering - 210330 Engineering & Technology Co-Op <u>OR</u> 210331 Engineering & Technology Internship 　　Note: (PLTW) courses require an agreement between Project Lead The Way and the Local School District please see the link to PLTW Program Requirements for further information.	Astronaut Aerospace Engineer Aerospace Technician Mechanical Engineer Aircraft Mechanic Crew Chief Aircraft Manufacturing Manager Aircraft Structural Assembler Quality Control Inspector Mechanical Design Engineer

ENGINEERING & TECHNOLOGY EDUCATION
CAREER PATHWAYS
2015-2016

AERONAUTICS & AEROSPACE
Space Systems Engineering
CIP 14.0201.02

PATHWAY DESCRIPTION: An instructional program in astronautics designed to develop basic knowledge of space systems and to gain practical experience in designing, fabricating, and testing space type experiments. Students will learn and understand the constraints on device design to operate in the LEO (Low Earth Orbit) space environment. Students will also get hands-on experience in a laboratory environment and in the safe use of shop equipment.

BEST PRACTICE CORE	EXAMPLE ILP-RELATED CAREER TITLES

Foundational Skills Necessary for Career-Ready Measure: (KOSSA/Industry Certification)
 	
    Complete (4) FOUR CREDITS
 	
- 210226 Introduction to Aerospace
- 210235 Introduction to Space Systems Engineering I
- 210236 Space Systems Engineering II
- 210229 Fundamentals of Aeronautical Engineering <u>OR</u>
  219907 Aerospace Engineering *(PLTW)* <u>OR</u>
  219903 Digital Electronics *(PLTW)*
 	
    Note: (PLTW) courses require an agreement between Project Lead The Way and the Local School District please see the link to PLTW Program Requirements for further information.
	Astronaut
	
	Aerospace Engineer
	Aerospace Technician
	
	Mechanical Engineer
	
	Mechanical Design Engineer
	
	Electronics Engineer
	
	Electronics Technician
	
	Mission Planner
	
	Orbit Analyst
	
	Satellite Flight Engineer

ENGINEERING & TECHNOLOGY EDUCATION
CAREER PATHWAYS
2015-2016

AERONAUTICS & AEROSPACE
Aircraft Maintenance Technician
CIP 47.0607.00

PATHWAY DESCRIPTION: A program that prepares individuals to apply technical knowledge and skills to repair, service, and maintain all aircraft components other than engines, propellers, avionics, and instruments. Includes instruction in layout and fabrication of sheet metal, fabric, wood, and other materials into structural members, parts, and fittings, and replacement of damaged or worn parts such as control cables and hydraulic units.

BEST PRACTICE CORE	EXAMPLE ILP-RELATED CAREER TITLES

Foundational Skills Necessary for Career-Ready Measure: (KOSSA/Industry Certification)
 	
 Complete (3) THREE CREDITS
 	
 • 210226 Introduction to Aerospace
 • 210233 Fundamentals of Aviation Science I
 • 210139 Introduction to Aircraft Maintenance Technology I
 	
 Choose (1) ONE CREDIT from the following:
 	
 • 210234 Aviation Science II
 • 210229 Fundamentals of Aeronautical Engineering OR
   219907 Aerospace Engineering *(PLTW)*
 • 210330 Engineering & Technology Co-Op OR
   210331 Engineering & Technology Internship
 	
 Note: To gain FAA work experience and training requirements students must log hours and work with approved FAA (AP or IA).
 	
 Note: (PLTW) courses require an agreement between Project Lead The Way and the Local School District please see the link to PLTW Program Requirements for further information.
	Aircraft Maintenance Technician
	
	 (AP) Aircraft & Power Plant Mechanic
	
	 (IA) Inspector Authorization
	
	 (ASI) Aviation Safety Inspector
	
	 Crew Chief

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ENGINEERING & TECHNOLOGY EDUCATION
CAREER PATHWAYS
2015-2016

ENGINEERING & TECHNOLOGY DESIGN
15.1302.00

PATHWAY DESCRIPTION: This program of study is designed for students interested in the various disciplines of engineering and engineering technology. The sequences of courses will provide students with the opportunity to develop critical thinking skills and understanding of engineering concepts. Students then apply these skills in conjunction with the multi-step engineering design process to solve real-world problems. Includes instruction in engineering graphics, two-dimensional and three-dimensional engineering design, solids modeling, engineering animation, computer-aided drafting (CAD), computer-aided design (CADD), and auto-CAD techniques.

BEST PRACTICE CORE	EXAMPLE ILP-RELATED CAREER TITLES
Foundational Skills Necessary for Career-Ready Measure: *(KOSSA/Industry Certification)* *Complete (2) TWO CREDITS from the following:* • 210138 Mechanical & Technical Design • 210221 Fundamentals of Engineering Design I • 210108 Technological Design *Choose (2) TWO CREDITS from the following:* • 210222 Engineering Design II • 210109 Technological Issues and Impacts • 210117 Advanced Design Applications • 210290 Special Topics in Engineering • 210224 Principles of Engineering & Technology • 210330 Engineering & Technology Co-Op OR 210331 Engineering & Technology Internship	Engineering Technology Instructor CAD Engineer CAD Technician/Drafter Mold Designer Mechanical Designer Industrial Material Handling Designer Mechanical Engineer

ENGINEERING & TECHNOLOGY EDUCATION
CAREER PATHWAYS
2015-2016

CIVIL ARCHITECTURE & CONSTRUCTION TECHNOLOGY
15.0101.01

PATHWAY DESCRIPTION: A program that prepares individuals to apply basic engineering principles and technical skills in support of architects, engineers and planners engaged in designing and developing buildings, urban complexes, and related systems. Includes instruction in design testing procedures, building site analysis, model building and computer graphics, structural systems testing, analysis of prototype mechanical and interior systems, report preparation, basic construction and structural design, architectural rendering, architectural-aided drafting (CAD), layout and designs, architectural blueprint interpretation, building materials, and basic structural wiring diagramming.

BEST PRACTICE CORE	EXAMPLE ILP-RELATED CAREER TITLES
Foundational Skills Necessary for Career-Ready Measure: (KOSSA/Industry Certification) *Complete (2) TWO CREDITS from the following:* • 210138 Mechanical & Technical Design OR 210221 Fundamentals of Engineering Design I • 210223 Fundamentals of Architectural & Civil Engineering OR 219905 Civil Engineering & Architecture *(PLTW)* *Choose (2) TWO CREDITS from the following:* • 210140 Architectural Design & Civil Engineering II • 210141 Fundamentals of Building Construction Technologies • 210117 Advanced Design Applications • 210330 Engineering & Technology Co-Op OR 210331 Engineering & Technology Internship Note: (PLTW) courses require an agreement between Project Lead The Way and the Local School District please see the link to PLTW Program Requirements for further information.	Engineering Technology Instructor Architect Interior Designer Home Improvement Contractor Carpenter Construction Laborer Construction Manager Construction Supervisor Project Manager Building Inspector Drafter Renovator Quality Controller Property Assessor Building Superintendent

ENGINEERING & TECHNOLOGY EDUCATION CAREER PATHWAYS
2015-2016

POWER & ENERGY MANAGEMENT SYSTEMS TECHNOLOGY
(Sustainability & Energy Application)
CIP 15.0503.01

PATHWAY DESCRIPTION: A program that prepares individuals to apply basic engineering principles and technical skills in support of engineers and other professionals engaged in developing energy-efficient systems or monitoring energy use. The content includes activities to develop knowledge and skill in, but is not limited to the study of power systems and the kinds and sources of energy, repair, service, and maintenance of small internal-combustion engines used on portable power equipment such as generators, electrical motors, generators, and wind turbines. The content and activities will also include the study of safety, and leadership skills.

BEST PRACTICE CORE	EXAMPLE ILP-RELATED CAREER TITLES

Foundational Skills Necessary for Career-Ready Measure: *(KOSSA/Industry Certification)*
 	
  Complete (2-3) TWO-THREE CREDITS from the following:
 	
 • 201341 Foundations of Energy
 • 210232 Basic Electricity & Energy Systems
 • 210242 Introduction to Alternative Energy I
 	
  Choose (1-2) ONE-TWO CREDITS from the following:
 	
 • 210243 Alternative Energy II
 • 210244 Global Energy Issues
 • 210142 Power & Energy Equipment Technology OR
  210290 Special Topics in Engineering OR
  210330 Engineering & Technology Co-Op OR
  210331 Engineering & Technology Internship
	Engineering Technology Instructor
	
	 Outdoor Power Equipment Technician
	
	 Small Engine Mechanic
	
	 Solar Energy Technician
	
	 Wind Power Technician
	
	 Energy Auditor
	
	 Wind Power Technician
	
	 Energy Auditor
	
	 Electrical Mechanical Technician
	
	 Power Plant Technician
	
	 Turbine Technician
	
	 Energy Analyst
	
	 Electrical Engineering
	
	 Mechanical Engineering

ENGINEERING & TECHNOLOGY EDUCATION
CAREER PATHWAYS
2015-2016

POWER & ENERGY MANAGEMENT SYSTEMS TECHNOLOGY
(Energy Management)
CIP 15.0503.02

PATHWAY DESCRIPTION: A program that prepares individuals to apply basic engineering principles and technical skills in support of engineers and other professionals engaged in developing energy-efficient systems or monitoring energy use. Includes instruction in principles of energy conservation, instrumentation calibration, monitoring systems and test procedures, energy loss inspection procedures, energy conservation techniques, and report preparation and problem solving skills.

BEST PRACTICE CORE	**EXAMPLE ILP-RELATED CAREER TITLES**
Foundational Skills Necessary for Career-Ready Measure: (KOSSA/Industry Certification)	Engineering Technology Instructor
	Outdoor Power Equipment Technician
Complete (4)FOUR CREDITS from the following:	Small Engine Mechanic
• 201143 Energy I: *Energy Basics*	Solar Energy Technician
• 201144 Energy II: *Electric Power Generation & Distribution*	Wind Power Technician
• 201145 Energy III: *Careers & Emerging Technologies in Energy*	Energy Auditor
• 201146 Sustainability Management	Wind Power Technician
	Energy Auditor
Note: This Pathway requires partnership with a post-secondary institution to enable student achievement of the industry certification which can equate to post-secondary credit.	Electrical Mechanical Technician
	Power Plant Technician
	Turbine Technician
	Energy Analyst
	Electrical Engineering
	Mechanical Engineering

ENGINEERING & TECHNOLOGY EDUCATION
CAREER PATHWAYS
2015-2016

ROBOTICS & AUTOMATION
15.0405.00

PATHWAY DESCRIPTION: A program that prepares individuals to apply basic engineering principles and technical skills in support of engineers and other professionals engaged in developing and using robots. Includes instruction in the principles of robotics, design and operational testing, system maintenance and repair procedures, robot computer systems and control language, specific system types and applications to specific industrial tasks, and report preparation.

BEST PRACTICE CORE	**EXAMPLE ILP-RELATED CAREER TITLES**
Foundational Skills Necessary for Career-Ready Measure: (KOSSA/Industry Certification) *Complete (2) TWO CREDITS from the following:* • 210238 Foundations of Robotics • 210239 Robotics Design Essentials and Systems *Choose (2) TWO CREDITS from the following:* • 210232 Basic Electricity & Energy Systems • 210230 Fundamentals of Mechatronics <u>OR</u> 219902 Principles of Engineering *(PLTW)* • 210240 Robotics Applications • 210221 Fundamentals of Engineering Design I <u>OR</u> 219901 Introduction to Engineering Design *(PLTW)* • 210290 Special Topics in Engineering • 210330 Engineering & Technology Co-Op <u>OR</u> 210331 Engineering & Technology Internship Note: (PLTW) courses require an agreement between Project Lead The Way and the Local School District please see the link to PLTW Program Requirements for further information.	Engineering Technology Instructor Solar Energy Technician Wind Power Technician Energy Auditor Electrical Mechanical Technician Power Plant Technician Turbine Technician Energy Analyst Electrical Engineering Mechanical Engineering

ENGINEERING & TECHNOLOGY EDUCATION
CAREER PATHWAYS
2015-2016

GRAPHIC & DIGITAL COMMUNICATIONS
10.0105.00

PATHWAY DESCRIPTION: A program that generally prepares individuals to function as workers and managers within communications industries. Includes instruction in business economics; basic management; principles of interpersonal and mediated communications; radio, television, and digital media production; and related aspects of technology and communications systems.

BEST PRACTICE CORE	EXAMPLE ILP-RELATED CAREER TITLES

Foundational Skills Necessary for Career-Ready Measure: (KOSSA/Industry Certification)
 	
  Complete (2) TWO CREDITS from the following:
 	
- 060112 Digital Literacy
- 210138 Mechanical & Technical Design OR
  210221 Fundamentals of Engineering Design I
 	
  Choose (2) TWO CREDITS from the following:
 	
- 210133 Graphic Communications
- 210118 Advanced Technological Application
- 210111 Special Problems in Technology
- 210330 Engineering & Technology Co-Op OR
  210331 Engineering & Technology Internship
	Technology Teacher
	
	Communications
	  Technician
	
	Graphic Designer
	
	Desktop Publisher
	
	Web Designer

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FAMILY AND CONSUMER SCIENCES

FAMILY AND CONSUMER SCIENCES CAREER PATHWAYS
2015-2016

CONSUMER & FAMILY MANAGEMENT
CIP Code 19.0403.00

PATHWAY DESCRIPTION: The Consumer and Family Management pathway helps students develop skills associated with early career employment opportunities and rigorous education programs that prepare for this level of the career ladder. The knowledge and skills validated span across a broad range of Family and Consumer Sciences content areas and are central to career areas involving human services, consumer services/protection/advising, education and training as well as social and community services.

BEST PRACTICE CORE	EXAMPLE ILP-RELATED CAREER TITLES

Foundational Skills Necessary for Career-Ready Measure: *(KOSSA/Industry Certification)*
 	
Complete (3) THREE CREDITS from the following:
 	
• 200113 FACS Essentials <u>AND/OR</u> 200161 FACS Essentials Health*
• 201010 Money Skills <u>OR</u> 201011 Money Skills for Math <u>OR</u> 201015 Consumer Economics for SS credit
• 200171 Relationships**
• 200441 Foods & Nutrition
 	
Choose (1) ONE CREDIT from the following:
 	
• 200226 Middle to Late Lifespan Development**
• 200173 Parenting**
 	
    Note: (*) Indicates half-credit (.5) course
 	
    Note: (**) Indicates course can be half-credit (.5) <u>OR</u> a full (1) credit course
	Marriage and Family Therapist
	
	Family and Consumer Scientist
	
	Gerontologist
	
	Abuse/Crisis Counselor
	
	Personal Financial Planner

FAMILY AND CONSUMER SCIENCES CAREER PATHWAYS
2015-2016

CULINARY & FOOD SERVICES
CIP Code 12.0500.00

PATHWAY DESCRIPTION: The Culinary & Food Service pathway addresses a skill set necessary for success in the culinary industry. The courses in this pathway will help students develop skills in early career ladder positions and promote continuing education at the post-secondary level preparing for careers associated with restaurants, institutional food service, hospitality and catering, as well as food and beverage operations.

BEST PRACTICE CORE	**EXAMPLE ILP-RELATED CAREER TITLES**
Foundational Skills Necessary for Career-Ready Measure: (KOSSA/Industry Certification) *Complete (3) THREE CREDITS from the following:* • 200441 Foods & Nutrition • 200411 Culinary Arts I • 200412 Culinary Arts II *Choose (1) ONE CREDIT from the following:* • 200113 FACS Essentials AND/OR 200161 FACS Essentials Health* OR • 200442 Advanced Foods & Nutrition** • 200478 Internship: Culinary Arts • 200409 Co-op: Culinary Arts Note: (*) Indicates half-credit (.5) course Note: (**) Indicates course can be half-credit (.5) OR a full (1) credit course	Chef/Cook Baker Entrepreneur Food Inspector Butcher

FAMILY AND CONSUMER SCIENCES CAREER PATHWAYS
2015-2016

EARLY CHILDHOOD EDUCATION
CIP Code 13.1210.00

PATHWAY DESCRIPTION: The Early Childhood Education pathway will address a skill set necessary for success in early childhood education so that individuals can teach students ranging in age from infancy through eight years (grade three), depending on the school system or state regulations. This pathway is targeted for individuals preparing for careers related to early childhood education, such as those associated with child care, teaching, community-based children's programs, social services or counseling for children, and after-school programs.

BEST PRACTICE CORE	EXAMPLE ILP-RELATED CAREER TITLES
Foundational Skills Necessary for Career-Ready Measure: (KOSSA/Industry Certification) *Complete (3) THREE CREDITS:* 200223 Early Lifespan Development** 200261 Child Development Services I 200262 Child Development Services II *Choose (1) ONE CREDIT* 200113 FACS Essentials AND/OR 200161 FACS Essentials Health* 331020 Principles of Teaching 200171 Relationships** 200173 Parenting** 200210 Co-op: Early Childhood Education Note: (*) Indicates half-credit (.5) course Note: (**) Indicates course can be half-credit (.5) OR a full (1) credit course	Early Childhood Educator Psychologist Nanny Pediatrician Midwife

FASHION & INTERIOR DESIGN
CIP Code 50.0407.00

PATHWAY DESCRIPTION: The Fashion and Interior Design pathway will address a skill set necessary for success in the fashion industry as well as a career in the residential housing and furnishings industry. This pathway targets individuals who are interested in pursuing careers in the following areas: retail and wholesale buying, apparel and textile development and production, fashion and textile design, and visual merchandising as well as public and private sector housing programs, residential property and facility management, real estate, retail home furnishings, or home decorating and staging.

BEST PRACTICE CORE	EXAMPLE ILP-RELATED CAREER TITLES
Foundational Skills Necessary for Career-Ready Measure: (KOSSA/Industry Certification) *Complete (3) THREE CREDITS from the following:* • 200113 FACS Essentials • 200821 Fashion and Interior Design I • 200825 Fashion and Interior Design II *Choose (1) ONE CREDIT from the following:* • 201010 Money Skills OR 201011 Money Skills for Math • 200801 Internship: Fashion & Interior Design • 200810 Co-op: Fashion & Interior Design Note: (*) Indicates half-credit (.5) course Note: (**) Indicates course can be half-credit (.5) OR a full (1) credit course	Fashion Designer Interior Designer Fashion Retailer Clothing Manufacturer Furniture Designer

FAMILY AND CONSUMER SCIENCES CAREER PATHWAYS
2015-2016

FOOD SCIENCE & DIETETICS
CIP Code 51.3199.00

PATHWAY DESCRIPTION: The Food Science & Dietetics pathway addresses competencies and a skill set necessary for success as a pre-professional in a career with a substantial focus on food science. It will facilitate employment in early career ladder positions and promote continuing education at the post-secondary level in career areas involving: food science, food safety, food quality, food technology, or food preservation and packaging.

BEST PRACTICE CORE	EXAMPLE ILP-RELATED CAREER TITLES
Foundational Skills Necessary for Career-Ready Measure: (KOSSA/Industry Certification) *Complete (3) THREE CREDITS from the following:* • 200441 Foods & Nutrition • 200442 Advanced Foods & Nutrition** • 200415 Nutritional Food Science • 200414 Fundamentals of Dietetics *Choose (1) ONE CREDIT from the following:* • 200113 FACS Essentials AND/OR 200161 FACS Essentials Health* • 010702 Food Science & Technology • 304526 AP Chemistry OR 302646 AP Biology Note: (*) Indicates half-credit (.5) course Note: (**) Indicates course can be half-credit (.5) OR a full (1) credit course	Dietitian Food Scientist Flavor Chemist Food Engineer Food Safety Inspector

FAMILY AND CONSUMER SCIENCES CAREER PATHWAYS 2015-2016	
FUNDAMENTALS OF TEACHING **CIP Code 13.1308.00**	
PATHWAY DESCRIPTION: The Fundamentals of Teaching pathway will facilitate employment in early career ladder positions and promote continuing education at the post-secondary level preparing for careers associated with education and training in public and private school programs, elementary, middle, and secondary schools, after-school programs; higher education, non-profit, and corporate settings.	
BEST PRACTICE CORE	**EXAMPLE ILP-RELATED CAREER TITLES**

Foundational Skills Necessary for Career-Ready Measure: (KOSSA/Industry Certification)
 	
Complete (3) THREE CREDITS from the following:
 	
• 200223 Early Lifespan Development**
• 200226 Middle to Late Lifespan Development**
• 331020 Principles of Teaching
 	
Choose (1) ONE CREDIT from the following:
 	
• 200199 Leadership Dynamics**
• 200113 FACS Essentials
• 200171 Relationships**
 	
    Note: (**) Indicates course can be half-credit (.5)
       OR a full (1) credit course
	Teacher – all levels and areas
	
	Teacher Assistant
	
	Principal
	
	Superintendent
	
	School Counselor

FAMILY AND CONSUMER SCIENCES CAREER PATHWAYS
2015-2016

HOSPITALITY SERVICES
CIP Code 52.0905.00

PATHWAY DESCRIPTION: The Hospitality Services pathway prepares individuals to plan, manage, and market restaurants, food services in hospitality establishments, food service chains and franchise networks, and restaurant supply operations. Includes instruction in hospitality administration, food services management, wholesale logistics and distribution, franchise operations, business networking, personnel management, culinary arts, business planning and capitalization, food industry operations, marketing and retailing, business law and regulations, finance, and professional standards and ethics.

BEST PRACTICE CORE	EXAMPLE ILP-RELATED CAREER TITLES
Foundational Skills Necessary for Career-Ready Measure: (KOSSA/Industry Certification) *Complete (3) THREE CREDITS:* • 200442 Advanced Foods & Nutrition** • 200610 Principles of Hospitality • 200641 Specialized Services in Hospitality • 200113 FACS Essentials *Choose (1) ONE CREDIT:* • 200441 Foods & Nutrition • 080716 Principles of Marketing • 200601 Internship: Hospitality Services • 200690 Co-op: Hospitality Services Note: (**) Indicates course can be half-credit (.5) OR a full (1) credit course	Restaurant/Hotel Manager Event Planner Travel Agent Caterer Concierge

COMPLEMENTARY OR ADVANCED COURSEWORK BEYOND FAMILY AND CONSUMER SCIENCES CAREER PATHWAY(S)
Upon completion of a pathway, additional coursework to enhance student learning is encouraged. Credits earned in Advanced or Complementary Coursework "Beyond the Pathway" may not be substituted for pathway courses in order to achieve Preparatory or Completer status.
• 200199 Leadership Dynamics
• Career Options
• JAG Courses

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HEALTH SCIENCES

HEALTH SCIENCES CAREER PATHWAYS
2015-2016

ALLIED HEALTH
CIP 51.0000.01

PATHWAY DESCRIPTION: A general, introductory, undifferentiated, or joint program in health services occupations that prepares individuals for either entry into specialized training programs or for a variety of concentrations in the allied health area. Includes instruction in the basic sciences, research and clinical procedures, and aspects of the subject matter related to various health occupations.

BEST PRACTICE CORE	EXAMPLE ILP-RELATED CAREER TITLES
Foundational Skills Necessary for Career-Ready Measure: *(KOSSA/Industry Certification)* *Complete **(2) TWO CREDITS** from the following*: • 170111 Principles of Health Science • 170141 Emergency Procedures** AND 170131 Medical Terminology I* *Choose **(2) TWO CREDITS** from the following:* • 170501 Allied Health Core Skills • 170169 Medical Math** • 170168 Holistic Health • 170167 Body Structures and Functions OR 302631 Anatomy (Science Course) • 170550 Internship: Allied Health Note: (*) Indicates half-credit (.5) course Note: (**) Indicates course can be half-credit (.5) OR a full (1) credit course	Doctor Nurse Pharmacist Physical Therapist Psychologist Radiologist Surgeon Veterinarian

HEALTH SCIENCES CAREER PATHWAYS
2015-2016

PLTW BIOMEDICAL SCIENCES
CIP 26.0102.00

PATHWAY DESCRIPTION: A general, program that focuses on the integrative scientific study of biological issues related to health and medicine, or a program in one or more of the biomedical sciences that is undifferentiated as to title. Includes instruction in any of the basic medical sciences at the research level; biological science research in biomedical faculties; and general studies encompassing a variety of the biomedical disciplines.

BEST PRACTICE CORE	EXAMPLE ILP-RELATED CAREER TITLES

Foundational Skills Necessary for Career-Ready Measure: (KOSSA/Industry Certification)
 	
   Complete (4) FOUR CREDITS:
 	
• 170701 Principles of Biomedical Science
• 170702 Human Body Systems
• 170703 Medical Interventions
• 170704 Biomedical Innovations
 	
   Note: (PLTW) courses require an agreement between Project Lead the Way and the Local School District.
	Biologist
	
	Biomedical Engineer
	
	Biotechnologist
	
	Coroner
	
	Doctor
	
	Forensic Scientist
	
	Nurse
	
	Pharmacist
	
	Surgeon

DENTAL TECHNOLOGY
CIP 51.0601.01

PATHWAY DESCRIPTION: A program that prepares individuals to provide patient care, take dental radiographs (x-ray photographs), prepare patients and equipment for dental procedures, and discharge office administrative functions under the supervision of dentists and dental hygienists. Includes instruction in medical record-keeping, general office duties, reception and patient intake, scheduling, equipment maintenance and sterilization, basic radiography, pre- and post-operative patient care and instruction, chairside assisting, taking tooth and mouth impressions, and supervised practice.

BEST PRACTICE CORE	EXAMPLE ILP-RELATED CAREER TITLES

Foundational Skills Necessary for Career-Ready Measure: *(KOSSA/Industry Certification)*
 	
 Complete (3) THREE CREDITS from the following:
 	
 • 170111 Principles of Health Science
 • 170141 Emergency Procedures** AND 170131 Medical Terminology I*
 • 170552 Internship: Dental Assistant
 	
 Choose (1) ONE CREDIT from the following:
 	
 • 170132 Medical Terminology II* *(course targeted for removal 16-17)*
 • 170167 Body Structures and Functions <u>OR</u>
   302631 Anatomy (Science Course)
 • 170501 Allied Health Core Skills
 	
   Note: (*) Indicates half-credit (.5) course
 	
   Note: (**) Indicates course can be half-credit (.5) <u>OR</u> a full (1) credit course
	Dentist
	
	 Dental Assistant
	
	 Dental Lab Tech

EKG TECHNOLOGY/TECHNICIAN
CIP 51.0902.01

PATHWAY DESCRIPTION: A program that prepares individuals, under the supervision of physicians and nurses, to administer EKG and ECG diagnostic examinations and report results to the treatment team. Includes instruction in basic anatomy and physiology, the cardiovascular system, medical terminology, cardiovascular medications and effects, patient care, EKG and ECG administration, equipment operation and maintenance, interpretation of cardiac rhythm, patient record management, and professional standards and ethics.

BEST PRACTICE CORE	EXAMPLE ILP-RELATED CAREER TITLES

Foundational Skills Necessary for Career-Ready Measure: *(KOSSA/Industry Certification)*
 	
   Complete (3) THREE CREDITS from the following:
 	
• 170111 Principles of Health Science
• 170141 Emergency Procedures** AND 170131 Medical Terminology I*
• 170555 Internship: EKG Technician
 	
  Choose (1) ONE CREDIT from the following:
 	
• 170132 Medical Terminology II *(course targeted for removal 16-17)*
• 170167 Body Structures and Functions <u>OR</u>
  302631 Anatomy (Science Course)
 	
   Note: (*) Indicates half-credit (.5) course
 	
   Note: (**) Indicates course can be half-credit (.5) <u>OR</u> a full (1)
          credit course
	Diagnostic Medical Sonographer
	
	Medical Assistant
	
	Medical Lab Tech
	
	Nurse
	
	Radiologist

HEALTH SCIENCES CAREER PATHWAYS
2015-2016

EMERGENCY MEDICAL TECHNICIAN
CIP 51.0904.01

PATHWAY DESCRIPTION: A program that prepares individuals, under the remote supervision of physicians, to recognize, assess, and manage medical emergencies in prehospital settings and to supervise Ambulance personnel. Includes instruction in basic, intermediate, and advanced EMT procedures; emergency surgical procedures; medical triage; rescue operations; crisis scene management and personnel supervision; equipment operation and maintenance; patient stabilization, monitoring, and care; drug administration; identification and preliminary diagnosis of diseases and injuries; communication and computer operations; basic anatomy, physiology, pathology, and toxicology; and professional standards and regulations.

BEST PRACTICE CORE	EXAMPLE ILP-RELATED CAREER TITLES

Foundational Skills Necessary for Career-Ready Measure: *(KOSSA/Industry Certification)*
 	
     Complete (4) FOUR CREDITS:
 	
 • 170111 Principles of Health Science
 • 170141 Emergency Procedures** AND 170131 Medical Terminology I*
 • 461022 Emergency Medical Technician (EMT)
 • 461023 EMS Training
 	
   Note: (*) Indicates half-credit (.5) course
 	
   Note: (**) Indicates course can be half-credit (.5) <u>OR</u> a full (1)   credit course
 	
 Note: This pathway requires an agreement with the KY Board of Emergency Medical Services. More information explained via: www.kbems.kctcs.edu.
	Paramedic

HEALTH SCIENCES CAREER PATHWAYS
2015-2016

MEDICAL ADMINISTRATIVE ASSISTING
CIP 51.0710.00

PATHWAY DESCRIPTION: A program that prepares individuals, under the supervision of office managers and other professionals, to perform routine administrative duties in a medical, clinical, or health care facility/system office environment. Includes instruction in general office skills, data processing, office equipment operation, principles of medical record-keeping and business regulations, medical/clinical office procedures, and communications skills.

BEST PRACTICE CORE	EXAMPLE ILP-RELATED CAREER TITLES
Foundational Skills Necessary for Career-Ready Measure: *(KOSSA/Industry Certification)* *Complete (4) FOUR CREDITS:* • 170111 Principles of Health Science • 170141 Emergency Procedures** AND 170131 Medical Terminology I* • 170920 Medical Office Procedures • 170922 Internship: Medical Administrative Assistant Note: (*) Indicates half-credit (.5) course Note: (**) Indicates course can be half-credit (.5) OR a full (1) credit course	Medical Assistant Medical Secretary Medical Transcriptionist

HEALTH SCIENCES CAREER PATHWAYS
2015-2016

PHLEBOTOMY TECHNICIAN
CIP 51.1009.01

PATHWAY DESCRIPTION: A program that prepares individuals, under the supervision of physicians and other health care professionals, to draw blood samples from patients using a variety of intrusive procedures. Includes instruction in basic vascular anatomy and physiology, blood physiology, skin puncture techniques, venipuncture, venous specimen collection and handling, safety and sanitation procedures, and applicable standards and regulations.

BEST PRACTICE CORE	EXAMPLE ILP-RELATED CAREER TITLES

Foundational Skills Necessary for Career-Ready Measure: *(KOSSA/Industry Certification)*
 	
 *Complete **(3) THREE CREDITS** from the following:*
 	
 • 170111 Principles of Health Science
 • 170141 Emergency Procedures** <u>AND</u> 170131 Medical Terminology I*
 • 170567 Internship: Medical Laboratory Aide (Phlebotomist)
 	
 *Choose **(1) ONE CREDIT** from the following:*
 	
 • 170168 Holistic Health *(course targeted for removal 16-17)*
 • 170501 Allied Health Core Skills
 • 170169 Medical Math**
 • 170167 Body Structures and Functions <u>OR</u>
  302631 Anatomy (Science Course)
 	
  Note: (*) Indicates half-credit (.5) course
 	
  Note: (**) Indicates course can be half-credit (.5) <u>OR</u> a full (1)
   credit course
	Medical Lab Tech
	
	 Phlebotomist

HEALTH SCIENCES CAREER PATHWAYS
2015-2016

PHARMACY TECHNICIAN
CIP 51.0805.01

PATHWAY DESCRIPTION: A program that prepares individuals, under the supervision of pharmacists, to prepare medications, provide medications and related assistance to patients, and manage pharmacy clinical and business operations. Includes instruction in medical and pharmaceutical terminology, principles of pharmacology and pharmaceutics, drug identification, pharmacy laboratory procedures, prescription interpretation, patient communication and education, safety procedures, record-keeping, measurement and testing techniques, pharmacy business operations, prescription preparation, logistics and dispensing operations, and applicable standards and regulations.

BEST PRACTICE CORE	EXAMPLE ILP-RELATED CAREER TITLES

Foundational Skills Necessary for Career-Ready Measure: *(KOSSA/Industry Certification)*
 	
    *Complete **(3) THREE CREDITS** from the following:*
 	
    • 170111 Principles of Health Science
    • 170141 Emergency Procedures** <u>AND</u> 170131 Medical Terminology I*
    • 170558 Internship: Pharmacy Technician
    (Note: Course title expected to remove "Internship" in 16-17 due to a full classroom curriculum in the course)
 	
    *Choose **(1) ONE CREDIT** from the following:*
 	
    • 170169 Medical Math**
    • 170167 Body Structures and Functions <u>OR</u>
    302631 Anatomy (Science Course)
    • 170168 Holistic Health
    • 170501 Allied Health Core Skills
    • 170614 Pharmacological and Other Therapeutic Modalities*
    (course targeted for removal 16-17)
 	
    Note: (*) Indicates half-credit (.5) course
 	
    Note: (**) Indicates course can be half-credit (.5) <u>OR</u> a full (1) credit course
	Pharmacy Technician

HEALTH SCIENCES CAREER PATHWAYS
2015-2016

PRE-NURSING
CIP 51.2699.01

PATHWAY DESCRIPTION: A program that prepares individuals for admission to a professional program in Nursing.

BEST PRACTICE CORE	**EXAMPLE ILP-RELATED CAREER TITLES**

Foundational Skills Necessary for Career-Ready Measure: *(KOSSA/Industry Certification)*
 	
Complete (3) THREE CREDITS from the following:
 	
• 170111 Principles of Health Science
• 170141 Emergency Procedures** AND 170131 Medical Terminology I*
• 170631 Medicaid Nurse Aide
 	
Choose (1) ONE CREDIT from the following:
 	
• 170169 Medical Math**
  170521 Internship: Advanced Allied Health Core Skills *(course targeted for removal 16-17)*
• 170621 Advanced Pre-Nursing *(course targeted for removal 16-17)*
• 170167 Body Structures and Functions OR
  302631 Anatomy (Science Course)
• 170601 Co-op (Nursing)
 	
  Note: (*) Indicates half-credit (.5) course
 	
  Note: (**) Indicates course can be half-credit (.5) to a full (1) credit course
	Licensed Practical Nurse
	
	Nurse
	
	Nurse Practitioner
	
	Nursing Assistant
	
	Physician's Assistant
	
	Doctor

HEALTH SCIENCES CAREER PATHWAYS
2015-2016

SPORTS MEDICINE
CIP 51.0913.00

PATHWAY DESCRIPTION: A program that prepares individuals to work in consultation with, and under the supervision of physicians to prevent and treat sports injuries and associated conditions. Includes instruction in the identification, evaluation, and treatment of athletic injuries and illnesses; first aid and emergency care; therapeutic exercise; anatomy and physiology; exercise physiology; kinesiology and biomechanics; nutrition; sports psychology; personal and community health; knowledge of various sports and their biomechanical and physiological demands; and applicable professional standards and regulations.

BEST PRACTICE CORE	EXAMPLE ILP-RELATED CAREER TITLES

Foundational Skills Necessary for Career-Ready Measure: *(KOSSA/Industry Certification)*
 	
    Complete (3) THREE CREDITS:
 	
- 170111 Principles of Health Science
- 170141 Emergency Procedures** AND 170131 Medical Terminology I*
- 170301 Essentials of Sports Medicine
- 170302 Applied Sports Medicine
 	
    Note: (*) Indicates half-credit (.5) course
 	
    Note: (**) Indicates course can be half-credit (.5) to a full (1) credit course
	Athletic Trainer

HEALTH SCIENCES CAREER PATHWAYS
2015-2016

VETERINARY ASSISTANT
CIP 51.0808.00

PATHWAY DESCRIPTION: A program that prepares individuals, under the supervision of veterinarians, veterinary technicians, laboratory animal specialists, and zoological professionals, to provide patient management, care, and clinical procedures assistance as well as owner communication. Includes instruction in animal nursing care, animal health and nutrition, animal handling, clinical pathology, radiology, surgical assisting, clinical laboratory procedures, office administration skills, patient and owner management, and applicable standards and regulations.

This program follows National Association of Veterinary Technicians in America (NAVTA) guidelines and offers students the opportunity for national certification as an approved Veterinary Assistant.

BEST PRACTICE CORE	EXAMPLE ILP-RELATED CAREER TITLES

Foundational Skills Necessary for Career-Ready Measure: *(KOSSA/Industry Certification)*
 	
     Complete *(4) FOUR CREDITS:*
 	
 • 170801 Principles of Veterinary Assisting
 • 170802 Veterinary Assisting Skills
 • 170803 Advanced Veterinary Assisting Skills
 • 170804 Veterinary Assisting Internship
 	
   Note: (*) Indicates half-credit (.5) course
   Note: (**) Indicates course can be half-credit (.5) to a full (1)
        credit course
	Animal Caretaker
	
	 Animal Trainer
	
	 Marine Biologist
	
	 Veterinarian
	
	 Veterinary Technician
	
	 Zoologist
	
	 Zookeeper

COMPLEMENTARY OR ADVANCED COURSEWORK BEYOND
HEALTH SCIENCES PATHWAY(s)

Upon completion of a pathway, additional coursework to enhance student learning is encouraged.

Credits earned in Advanced or Complementary Coursework "Beyond the Pathway" may not be substituted for pathway courses in order to achieve Preparatory or Completer status.

Course Code	Course Title
170172	Health and Wellness *(course targeted for removal 16-17)*
170199	Leadership Dynamics – Health Science
170705	Internship: Biomedical Sciences, General *(course targeted for removal 16-17)*
170706	Internship: Biomedical Sciences, EKG Technician *(course targeted for removal 16-17)*
170707	Internship: Biomedical Sciences, Pharmacy Technician *(course targeted for removal 16-17)*
170553	Internship: Dietetic Technician *(course targeted for removal 16-17)*
170554	Internship: Dispensing Optician *(course targeted for removal 16-17)*
170568	Internship: Funeral Attendant *(course targeted for removal 16-17)*
170566	Internship: Health Science *(course targeted for removal 16-17)*
170556	Internship: Medical Assistant *(course targeted for removal 16-17)*
170569	Internship: Occupational Therapy Aide *(course targeted for removal 16-17)*
170557	Internship: Personal and Home Care Aide *(course targeted for removal 16-17)*
170559	Internship: Physical Therapy Aide *(course targeted for removal 16-17)*
170560	Internship: Psychiatric Aide *(course targeted for removal 16-17)*
170564	Internship: Radiographic Aide *(course targeted for removal 16-17)*
170565	Internship: Speech Therapy Aide *(course targeted for removal 16-17)*
170563	Internship: Veterinary Assistant & Laboratory Animal Caretaker *(course targeted for removal 16-17)*
170591	Special Topics in Allied Health
170611	Development of Care Giver Role *(course targeted for removal 16-17)*
170640	Health Science Microbiology/Infection Control
170610	Introduction to Nursing and Health Care System *(course targeted for removal 16-17)*
170615	Nursing Assistant Skills I *(course targeted for removal 16-17)*
170613	Nursing Assistant Skills II *(course targeted for removal 16-17)*
170691	Special Topics in Health Science/Pre-Nursing Major *(course targeted for removal 16-17)*

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INFORMATION TECHNOLOGY

INFORMATION TECHNOLOGY CAREER PATHWAYS
2015-2016

COMPUTER PROGRAMMING
CIP 11.0201.01

PATHWAY DESCRIPTION: The Computer Programming pathway courses will prepare students to design, create, and troubleshoot the latest programming languages used in industry. Students will complete the pathway with the four following courses: Computer Literacy, Computational Thinking, Programming Introduction, and a targeted course for a specific programming language as capstone. Upon completion of this career pathway, students will be prepared for an entry level position in the IT field or continue their education in computer programming.

BEST PRACTICE CORE	**EXAMPLE ILP-RELATED CAREER TITLES**

Foundational Skills Necessary for Career-Ready Measure: (KOSSA/Industry Certification)
 	
Complete (2) TWO CREDITS:
 	
• 110110 Computer Literacy OR
  060112 Digital Literacy
• 110251 Computational Thinking
 	
Choose (2) TWO CREDITS from the following:
 	
• 110201 Programming Introduction (KCTCS recommends JavaScript)
• 110202 C++1
• 110205 JAVA
• 110207 Visual Basic
• 110809 JavaScript
• 110206 JAVA II
• 110208 Visual Basic II
• 110918 Information Technology Co-op OR
  110919 Information Technology Internship
	Computer Programmer
	
	Software Developer
	
	Database Administrator
	
	Computer Hardware Engineer
	
	Computer Systems Analyst
	
	Computer Network Architect
	
	Web Developer
	
	Information Security Analyst
	
	Computer Systems Manager
	
	Information Systems Manager
	
	Project Manager

INFORMATION TECHNOLOGY CAREER PATHWAYS
2015-2016

COMPUTER SCIENCE
CIP 11.0701.01

PATHWAY DESCRIPTION: The Computer Science Pathway courses focus on computer theory, computing problems and solutions, and design of computer systems and user-interfaces. The coursework will include instruction in the principles of computational science, computer development and programming and applications to a variety of end use situations.

BEST PRACTICE CORE	EXAMPLE ILP-RELATED CAREER TITLES

Foundational Skills Necessary for Career-Ready Measure: (KOSSA/Industry Certification)
 	
Complete (1) ONE CREDIT from the following:
 	
• 110110 Computer Literacy OR
  060112 Digital Literacy
• 110710 Introduction to Computer Science
  (NEW Course 2015-2016)
  (May be taken in place of Computer Literacy if proficiency has been demonstrated)
 	
Complete (1) ONE CREDIT from the following:
• 110251 Computational Thinking
• 110205 JAVA
• 110711 Computer Science Principles (NEW Course 2015-2016)
• 110730 Computer Science and Software Engineering *(PLTW)*
  (NEW Course 2015-2016)
 	
Choose (2) TWO CREDITS from the following:
• 110701 AP Computer Science A
• 110202 C++1
• 110207 Visual Basic
• 110809 JavaScript
• 110206 JAVA II
• 110208 Visual Basic II
• 110918 Information Technology Co-op OR
  110919 Information Technology Internship
 	
    Note: (PLTW) courses require an agreement between Project Lead The Way and the Local School District please see the link to PLTW Program Requirements for further information.
	Software Developer
	
	Database Administrator
	
	Computer Hardware Engineer
	
	Computer Systems Analyst
	
	Computer Network Architect
	
	Web Developer
	
	Information Security Analyst
	
	Computer Programmer
	
	Computer Systems Manager
	
	Information Systems Manager
	
	Project Manager

INFORMATION TECHNOLOGY CAREER PATHWAYS
2015-2016

INFORMATICS PATHWAY
CIP 11.0802.00

PATHWAY DESCRIPTION: Students will apply software systems such as Excel, Access and other industry software to acquire, collect, store and communicate data in meaningful ways to clients. Students will manage projects, work in teams, think critically, solve problems and propose solutions to design problems. Further, they will learn to apply literacy, mathematics and science concepts and use technology to effectively solve real-world challenging problems. Through project-based learning, students will explore the future of informatics and learn those habits of behavior and mind unique to professionals in the field. Informatics leverages technology, data and communication by instilling in a new generation the knowledge, imagination and flexibility to tackle complex issues successfully in a data-rich digital world. It is the process of designing systems that take raw data and convert it into new knowledge that can be applied to any field while considering the impact on individuals, organizations and society. **THIS IS A PATHWAY SPECIFIC TO THE SOUTHERN REGION EDUCATION BOARD (SREB). EACH COURSE REQUIRES TEACHER SUMMER TRAINING BEFORE IMPLEMENTATION.**

BEST PRACTICE CORE	EXAMPLE ILP-RELATED CAREER TITLES
Foundational Skills Necessary for Career-Ready Measure: (KOSSA/Industry Certification) *Complete (4) FOUR CREDITS in the following:* • 111001 Computer, Networks and Databases **(SREB)** • 111002 Design for the Digital World **(SREB)** • 111003 Databases in the Cloud **(SREB)** • 111004 Developing a Cloud Presence **(SREB)** • 110918 Information Technology Co-op <u>OR</u> 110919 Information Technology Internship Note: (SREB) courses require an agreement between the Southern Region Education Board and the District.	Bioinformaticist Data Mapper Chemical Informaticist Database Designer Digital Artist Human-Computer Interface Designer Information Architect Usability Analyst Interaction Designer System Integrator Web Designer Software Engineer Project Manager Informatics Support Member Expert

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INFORMATION TECHNOLOGY CAREER PATHWAYS
2015-2016

WEB DEVELOPMENT AND ADMINISTRATION PATHWAY
CIP 11.0801.01

PATHWAY DESCRIPTION: The Web pathway courses involve creating, designing and producing interactive multimedia products and services. This will include development of digitally-generated or computer-enhanced media, and the adherence to web standards, as used in business, training, communications and marketing. Organizations of all types and sizes use digital media, web pages, and websites to communicate with existing and potential customers, to track transactions, and to collaborate with colleagues. This pathway will prepare students to enter the workforce ready to participate as leaders in a broad range of careers and further their education. The courses for this pathway are designed to build on each other and should be taken in the order specified.

BEST PRACTICE CORE	EXAMPLE ILP-RELATED CAREER TITLES
Foundational Skills Necessary for Career-Ready Measure: (KOSSA/Industry Certification) *Complete (3) THREE CREDITS from the following:* • 110110 Computer Literacy OR 060112 Digital Literacy • 110801 Web Page Development • 110804 Web Site Design and Production *Choose (1) ONE CREDITS from the following:* • 110213 Computer Graphics • 110917 Internet Technologies • 110251 Computational Thinking • 110918 Information Technology Co-op OR 110919 Information Technology Internship	Internet Project Manager IT Education Teacher Webmaster Web Administrator Web Developer Web Graphic Designer Web Programmer/Analyst

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INFORMATION TECHNOLOGY CAREER PATHWAYS
2015-2016

DIGITAL DESIGN & GAME DEVELOPMENT
CIP 36.0113.00

PATHWAY DESCRIPTION: The digital design/gaming pathway courses provide students with a thorough understanding of techniques for designing advanced 3D games and simulations. The courses will cover 2D and 3D graphics, animation, character development, texturing, scripting, program design and coding, and game setup using state-of-the-art software development tools. Completing students will have developed the skills necessary to create 3D graphics and simple applications that can be used for games and simulations.

BEST PRACTICE CORE	EXAMPLE ILP-RELATED CAREER TITLES

Foundational Skills Necessary for Career-Ready Measure: (KOSSA/Industry Certification)
 	
   Complete (1-2) ONE -- TWO CREDITS from the following:
 	
• 113605 Game Design Principles (NEW Course 2015-2016)
• 110110 Computer Literacy OR 060112 Digital Literacy
 	
   Choose (2-3) TWO – THREE CREDITS from the following:
 	
• 113601 Introduction to Digital 3D Game Graphics
• 113602 Game & Engine Development, Animation, (Photoshop)
• 113603 Advanced 3D Game Development
• 110201 Programming Introduction
• 110251 Computational Thinking
• 110918 Information Technology Co-op OR 110919 Information Technology Internship
	Internet Project Manager
	
	IT Education Teacher
	
	Web Animator
	
	Design Artist
	
	Cartoonist
	
	Game Designer
	
	Game Design Analyst
	
	Webmaster
	
	Web Developer
	
	Web Graphic Designer

INFORMATION TECHNOLOGY CAREER PATHWAYS
2015-2016

INFORMATION SUPPORT AND SERVICES PATHWAY
CIP 47.0104.01

PATHWAY DESCRIPTION: The Information Support and Services pathway focuses on the design of computing systems. The courses include instruction in the principles of computer hardware & software components, algorithms data basis, telecommunications, etc. Any course not found under this career major/sub code may be found in another career major/sub code within this program area.

BEST PRACTICE CORE	**EXAMPLE ILP-RELATED CAREER TITLES**
Foundational Skills Necessary for Career-Ready Measure: (KOSSA/Industry Certification) *Complete (3) THREE CREDITS from the following:* 110110 Computer Literacy <u>OR</u> 060112 Digital Literacy 110101 Computer Hardware and Software Maintenance 110102 Help Desk Operations *Choose (1) ONE CREDIT from the following:* 110302 Management of Support Services (previously Help Desk II) 110917 Internet Technologies 110918 Information Technology Co-op <u>OR</u> 110919 Information Technology Internship	Computer Technician Customer Service Representative Data Entry Technician Electronics Technician Quality Assurance Tester Technical Support Help Desk Associate Technical Writing Clerk

INFORMATION TECHNOLOGY CAREER PATHWAYS
2015-2016

GEOGRAPHIC INFORMATION SYSTEMS PATHWAY
CIP 45.0702.00

PATHWAY DESCRIPTION: The GIS pathway is built on a foundation of computer-aided mapping and surveying technology for collecting spatial data, database generation and manipulation for tabular data, and GIS specific courses for organization, analysis and reporting. Students will create maps that identify quantities and/or densities, analyze what's inside or near a study area and indicate change.

BEST PRACTICE CORE	EXAMPLE ILP-RELATED CAREER TITLES
Foundational Skills Necessary for Career-Ready Measure: (KOSSA/Industry Certification) *Complete (4) FOUR CREDITS from the following:* • 110110 Computer Literacy OR 060112 Digital Literacy • 110107 Introduction to GIS – ArcView • 110315 GIS Software Tools and Applications • 110316 Special Topics in GIS • 110918 Information Technology Co-op OR 110919 Information Technology Internship	GIS Technician Project Manager Computer Programmer Database Administrator System Administrator, Cartographic Designer Business Development Related Managerial & Administrative Roles Surveyor

INFORMATION TECHNOLOGY CAREER PATHWAYS
2015-2016

NETWORK ADMINISTRATION PATHWAY
CIP 11.0901.01

PATHWAY DESCRIPTION: The networking pathway courses will help students learn new administration support skills or upgrade existing computer information systems skills. Students will be able to properly install networking software on an appropriately sized computer, configure the software for a simple server environment and connect it correctly to a physical network, manage a simple networking environment, effectively troubleshooting common problems, adding new users and attending to security concerns, work within the ethical and professional parameters in the field of network administration.

BEST PRACTICE CORE	EXAMPLE ILP-RELATED CAREER TITLES
Foundational Skills Necessary for Career-Ready Measure: (KOSSA/Industry Certification) *Complete (4)* **FOUR CREDITS** *from the following:* 110110 Computer Literacy OR 060112 Digital Literacy 110101 Computer Hardware and Software Maintenance 110901 Introduction to Networking Concepts 110251 Computational thinking 110917 Internet Technologies 110918 Information Technology Co-op OR 110919 Information Technology Internship	Network Server Administrator Support Team Member Quality Assurance System Analyst Sales Representative Technical Support Rep. Technical Writing Expert Electronics Engineer Hardware Engineer System Administrator Network Administrator

INFORMATION TECHNOLOGY CAREER PATHWAYS
2015-2016

NETWORK ADMINISTRATION "MCSA" PATHWAY
CIP 11.1001.00

PATHWAY DESCRIPTION: The MCSA pathway courses will help students learn new Microsoft server administration support skills or upgrade existing computer information systems skills. Students will be able to properly install Microsoft server software on an appropriately sized computer, configure the software for a simple server environment and connect it correctly to a physical network, manage a simple networking environment, effectively troubleshooting common problems, adding new users and attending to security concerns, work within the ethical and professional parameters in the field of Microsoft Server Administration. Students working in this pathway will work toward the MCSA certification.

BEST PRACTICE CORE	EXAMPLE ILP-RELATED CAREER TITLES

Foundational Skills Necessary for Career-Ready Measure:
 (KOSSA/Industry Certification)
 	
 Complete (4) FOUR CREDITS from the following:
 	
 • 110110 Computer Literacy OR
   060112 Digital Literacy
 • 110101 Computer Hardware and Software Maintenance
 • 110901 Introduction to Networking Concepts
 • 110913 MS Client/Server Configuration
 • 110918 Information Technology Co-op OR
   110919 Information Technology Internship
	Microsoft Server Administrator
	
	 Microsoft server admin. Support team member
	
	 Electronics Engineer
	
	 Hardware Engineer
	
	 System Administrator
	
	 Quality Assurance System Analyst
	
	 Sales Representative
	
	 Technical Support Rep.
	
	 Technical Writing Expert
	
	 Security Expert

INFORMATION TECHNOLOGY CAREER PATHWAYS
2015-2016

NETWORK ADMINISTRATION CISCO PATHWAY
CIP 11.1002.00

PATHWAY DESCRIPTION: The CISCO pathway courses will help students learn new CISCO network administration support skills or upgrade existing computer information systems skills. Students will be able to properly install CISCO software on an appropriately sized computer, configure the software for a simple server environment and connect it correctly to a physical network, manage a simple networking environment, effectively troubleshooting common problems, adding new users and attending to security concerns, work within the ethical and professional parameters in the field of CISCO Network administration.

BEST PRACTICE CORE	EXAMPLE ILP-RELATED CAREER TITLES
Foundational Skills Necessary for Career-Ready Measure: (KOSSA/Industry Certification) *Complete **(4) FOUR CREDITS** from the following*: • 110110 Computer Literacy OR 060112 Digital Literacy • 110101 Computer Hardware and Software Maintenance • 110902 Network Fundamentals CISCO I • 110903 Routing Protocols and Concepts CISCO II • 110904 LAN Switching and Wireless Scaling Networks CISCO III • 110905 Accessing the WAN & Connecting Networks CISCO IV • 110918 Information Technology Co-op OR 110919 Information Technology Internship	Cisco Network Administrator Cisco Engineer Cisco Hardware Engineer Cisco System Administrator Quality Assurance System Analyst Sales Representative Technical Support Rep. Technical Writing Expert Security Expert

INFORMATION TECHNOLOGY CAREER PATHWAYS
2015-2016

SECURITY PATHWAY
CIP 11.1003.00

PATHWAY DESCRIPTION: The Network Administration pathway specializing in Security courses will help students be able to properly design and install a wired LAN, including all network devices, physically connect servers and desktop computers, properly design and install a wireless LAN including all network devices, and make physical LAN connections for servers and desktop computers, integrate the Wireless LAN with the wired LAN and work within the ethical and professional parameters in the Computer Networking profession. Students will be a team member, learn new network administration support skills and upgrade existing computer information system skills. Students in this pathway will work towards the Security + certification.

BEST PRACTICE CORE	EXAMPLE ILP-RELATED CAREER TITLES
Foundational Skills Necessary for Career-Ready Measure: (KOSSA/Industry Certification) *Choose (4) FOUR CREDIT from the following:* • 110110 Computer Literacy OR 060112 Digital Literacy • 110101 Computer Hardware and Software Maintenance • 110901 Introduction to Networking Concepts • 110912 Security Fundamentals • 110918 Information Technology Co-op OR 110919 Information Technology Internship	Networking Security Administrator Electronics Security Engineer Hardware Security Engineer System Security Administrator Quality Assurance System Security Analyst Security Expert

COMPLEMENTARY OR ADVANCED COURSEWORK BEYOND INFORMATION TECHNOLOGY PATHWAY(s)

Upon completion of a pathway, additional coursework to enhance student learning is encouraged.

Credits earned in Advanced or Complementary Coursework "Beyond the Pathway" may not be substituted for pathway courses in order to achieve Preparatory or Completer status.

110152 Special Topics, Information Support and Services
110204 Productivity Software (CIT 130)
110211 Introduction to Database Design (Fundamentals) (CIT 170)
110252 Special Topics, Programming
110399 Leadership Dynamics
110604 Digital 3D Graphics & Special Effects II
110752 Special Topics Computer Science
110810 Flash with ActionScript
110852 Special Topics, Web Development/Administration
110906 Network Hardware Installation and Troubleshooting (CIT 260)
110907 MS Active Directory Server/Server Infrastructure (CIT 214)
110952 Special Topics, Networking
JAG Courses
Career Options

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MANUFACTURING TECHNOLOGY

COMPUTER AIDED DESIGN (CAD)
CAREER PATHWAYS
2015-2016

CIVIL DESIGNER
CIP 15.1301.01

PATHWAY DESCRIPTION: Civil Designers apply technical knowledge and skills to develop working drawing and electronic simulations in support of civil engineers, geological engineers, and related professionals. Includes instruction in basic civil engineering principles, geological and seismographic mapping, machine drafting, computer-aided drafting (CAD), pipe drafting, survey interpretation, and blueprint reading.

BEST PRACTICE CORE	EXAMPLE ILP-RELATED CAREER TITLES
Foundational Skills Necessary for Career-Ready Measure: *(KOSSA/Industry Certification)*	Engineer Technician
	Architectural Engineer
Complete (3) THREE CREDITS:	Electrical Engineer
	Industrial Engineer
• 480110 Introduction to Computer Aided Drafting	Mechanical Engineer
• 480112 Intermediate Computer Aided Drafting	Civil Engineer
• 480104-Introduction to Surveying OR 480113 Engineering Graphics	
Choose (1) ONE CREDIT from the following:	
• 480127 Industrial Drafting Process	
• 480136 Parametric Modeling	
• 480145 Internship I	
• 480135 Mechanical Design	
• 480142 Cooperative Education I (CAD)	
• 480179 Special Problems (CAD)	
• 219901 Introduction to Engineering Design *(PLTW)*	
Note: (PLTW) courses require an agreement between Project Lead the Way and the Local School District.	

COMPUTER AIDED DESIGN (CAD)
CAREER PATHWAYS
2015-2016

MECHANICAL DESIGNER
CIP 15.1301.02

PATHWAY DESCRIPTION: Mechanical designers have a working knowledge of mechanical parts as well as computer-aided design (CAD) software, such as AutoCAD. Mechanical designers begin a project by meeting with project managers, engineers, and clients to understand the needs and requirements for a new product or mechanical system. For example, designers working on a project to create an automobile engine may consult engineers regarding which structural materials to use or clients regarding engine efficiency requirements. Once materials and specifications have been determined, designers begin using CAD software to plan and develop models.

BEST PRACTICE CORE	EXAMPLE ILP-RELATED CAREER TITLES
Foundational Skills Necessary for Career-Ready Measure: (KOSSA/Industry Certification) *Complete (3) THREE CREDITS:* • 480110 Introduction to Computer Aided Drafting • 480136 Parametric Modeling • 480113 Engineering Graphics *Choose (1) ONE CREDIT from the following:* • 480135 Mechanical Design • 480127 Industrial Drafting Process • 470924 Advanced Dimensioning and Measurement • 480112 Intermediate Computer Aided Drafting • 480145 Internship I (CAD) <u>OR</u> 480142 Cooperative Education I (CAD) • 480179 Special Problems (CAD) • 219901 Introduction to Engineering Design *(PLTW)* Note: (PLTW) courses require an agreement between Project Lead the Way and the Local School District.	Engineer Technician Electrical Engineer Industrial Engineer Mechanical Engineer Civil Engineer

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COMPUTER AIDED DESIGN (CAD)
CAREER PATHWAYS
2015-2016

ARCHITECTURAL DESIGNER
CIP 15.1301.03

PATHWAY DESCRIPTION: Architectural Designers apply mathematical and scientific principles to building design, concentrating on structural demands and functionality while taking into account economic and safety factors. Architectural Designers need to be able to diagram designs manually as well through computer-aided drafting (CAD). Design systems are created for a building pertaining to, for instance, heating and air conditioning, lighting and plumbing. Also included are concerns and detail to landscape architecture and crossovers such as environmental design.

BEST PRACTICE CORE	EXAMPLE ILP-RELATED CAREER TITLES

Foundational Skills Necessary for Career-Ready Measure: (KOSSA/Industry Certification)
 	
   Complete (3) THREE CREDITS:
 	
- 480110 Introduction to Computer Aided Drafting
- 480117 Introduction to Architecture
- 480116 Architectural Design
 	
Choose (1) ONE CREDITS from the following:
 	
- 480127 Industrial Drafting Process
- 480113 Engineering Graphics
- 470924 Advanced Dimensioning and Measurement
- 480179 Special Problems (CAD)
- 480112 Intermediate Computer Aided Drafting
- 219901 Introduction to Engineering Design *(PLTW)*
- 480145 Internship I (CAD) <u>OR</u>
  480142 Cooperative Education I (CAD)
 	
    Note: (PLTW) courses require an agreement between
    Project Lead the Way and the Local School District.
	Engineer Technician
	
	Architectural Engineer
	
	Electrical Engineer
	
	Civil Engineer

COMPUTER AIDED DESIGN (CAD)
CAREER PATHWAYS
2015-2016

CAD MANUFACTURING TRACK
CIP 48.0500.99

PATHWAY DESCRIPTION: The CAD Manufacturing TRACK is designed as a pre-apprenticeship pathway for technical students to enter industry. Through the collaboration of local industry, technical school, program instructor, student and parents, a pre-apprenticeship agreement is signed. Local industry chooses 4 courses related to the required skills that will prepare the student to enter a four year apprenticeship sponsored by the company. Upon graduation the student under the discretion of the company; may be awarded reduced apprenticeship time or start at a higher wage.

BEST PRACTICE CORE	EXAMPLE ILP-RELATED CAREER TITLES
Foundational Skills Necessary for Career-Ready Measure: *(KOSSA/Industry Certification)* *Complete (4) FOUR CREDITS:* • (4)- Core courses chosen from the CAD valid course list by the company sponsoring a State Registered Apprenticeship.	Engineer Technician Architectural Engineer Electrical Engineer Industrial Engineer Mechanical Engineer Civil Engineer

The Tech Ready Apprentices for Careers in Kentucky (*TRACK*) pre-apprenticeship program is a partnership between The Kentucky Department of Education's Office of Career and Technical Education and The Kentucky Labor Cabinet to provide pre-apprenticeship career pathway opportunities into registered apprenticeship programs to secondary students. This is a business and industry driven program to create a pipeline for students to enter post-secondary apprenticeship training.

Upon successful completion, the student will be awarded an industry certification by the employer or training organization through The Kentucky Labor Cabinet and all on-the-job hours worked will be counted towards the apprenticeship, if applicable. The certification will also count towards the local school district's college and career ready accountability index.

The specifics of the TRACK program vary and interested parties will need to confer with the Office of Career and Technical Education for the implementation process. There are no costs involved except wages for the student employee. The employer must have a registered apprenticeship program with The Kentucky Labor Cabinet. For more information, please refer to: http://education.ky.gov/CTE/cter/Pages/TRACK.aspx

As career pathways continue to expand, the ultimate rationale is that if an employer is willing to implement a Registered Apprenticeship program, a pipeline at the secondary level can be developed utilizing the TRACK program.

COMPLEMENTARY OR ADVANCED COURSEWORK BEYOND CAD PATHWAY(s)
Upon completion of a pathway, additional coursework to enhance student learning is encouraged. Credits earned in Advanced or Complementary Coursework "Beyond the Pathway" may not be substituted for pathway courses in order to achieve Preparatory or Completer status.
• Career Options
• JAG Courses
• 480179 Special Problems (CAD)

COMPUTERIZED MANUFACTURING & MACHINING CAREER PATHWAYS
2015-2016

MACHINIST TECHNICIAN
CIP 48.0503.01

PATHWAY DESCRIPTION: Machinist Technicians set up and operate a variety of machine tools, such as lathes, milling machines, and grinders, to produce precision metal parts, instruments, and tools. These tools are either manually controlled or computer-numerically controlled (CNC). Machinist Technicians must be able to read blueprints, align and adjust cutting tools and inspect the finished product to meet customer specifications.

BEST PRACTICE CORE	EXAMPLE ILP-RELATED CAREER TITLES
Foundational Skills Necessary for Career-Ready Measure: *(KOSSA/Industry Certification)* *Complete (3) THREE CREDITS:* • 470921 Blueprint Reading for Machinists • 470913 Fundamentals of Machine Tools-A • 470914 Fundamentals of Machine Tools-B *Choose (1) ONE CREDIT from the following:* • 470911 Applied Machining - I • 470912 Applied Machining - II • 470915 Manual Programming • 480110 Introduction to Computer Aided Drafting • 470922 Mechanical Blueprint Reading* • 470928 Metrology/Control Charts* • 219901 Introduction to Engineering Design *(PLTW)* • 470929 Co-op (Machine Tool) <u>OR</u> 470932 Internship (Machine Tool) Note: (PLTW) courses require an agreement between Project Lead the Way and the Local School District. Note: (*) Indicates half-credit (.5) course	Machine Operator Machinist Maintenance Machinist CNC Machine Operator CNC Programmer Quality Control Manager Mechanical Engineer Engineer Technician Industrial Engineer

COMPUTERIZED MANUFACTURING & MACHINING CAREER PATHWAYS
2015-2016

MACHINIST OPERATOR
CIP 48.0503.02

PATHWAY DESCRIPTION: Machine operators are responsible for producing precision machined parts. They measure parts with precision tools in order to make sure certain parts meet pre-determined quality and cosmetic standards**.** When parts have passed inspection, the parts go on to the next phase of production. Machine operators are expected to meet production quotas. The level of documentation required varies, depending on the degree of precision needed for the finished product. Machine operators also need to keep track of the number of units that are scrapped due to various errors.

BEST PRACTICE CORE	EXAMPLE ILP-RELATED CAREER TITLES
Foundational Skills Necessary for Career-Ready Measure: (KOSSA/Industry Certification)	Machinist Technician
	Machinist
Complete (3) THREE CREDITS:	Maintenance Machinist
	CNC Machine Operator
• 470913 Fundamentals of Machine Tools-A	CNC Programmer
• 470914 Fundamentals of Machine Tools-B	Quality Control Manager
• 470911 Applied Machining - I	Mechanical Engineer
Choose (1) ONE CREDIT from the following:	Engineer Technician
	Industrial Engineer
• 470921 Blueprint Reading for Machinists	
• 470912 Applied Machining - II	
• 470915 Manual Programming	
• 480110 Introduction to Computer Aided Drafting	
• 470922 Mechanical Blueprint Reading*	
• 470928 Metrology/Control Charts*	
• 219901 Introduction to Engineering Design *(PLTW)*	
• 470929 Co-op (Machine Tool) <u>OR</u> 470932 Internship (Machine Tool)	
Note: (PLTW) courses require an agreement between Project Lead the Way and the Local School District.	
Note: (*) Indicates half-credit (.5) course	

COMPUTERIZED MANUFACTURING & MACHINING CAREER PATHWAYS
2015-2016

COMPUTER NUMERICAL CONTROL (CNC) PROGRAMMER
CIP 48.0503.03

PATHWAY DESCRIPTION: CNC programmers develop and run programs which direct the CNC machines to cut and shape metal or plastic for such things as airplanes, automobiles and other industrial machines. CNC programmers use blueprints and 3-dimensional computer designs to create the programs which result in precisely cut products. Attention to detail and the ability to follow precise directions are vital to a CNC programmer as well as the ability to work independently.

BEST PRACTICE CORE	EXAMPLE ILP-RELATED CAREER TITLES
Foundational Skills Necessary for Career-Ready Measure: (KOSSA/Industry Certification) 　　*Complete (4) FOUR OR MORE CREDITS:* • 470921 Blueprint Reading for Machinists • 480110 Introduction to Computer Aided Drafting • 470913 Fundamentals of Machine Tools-A • 470915 Manual Programming • 470925 CAD/CAM/CNC • 470929 Co-op (Machine Tool) <u>OR</u> 470932 Internship (Machine Tool)	Machine Operator Machinist Technician Machinist Maintenance Machinist CNC Machine Operator CNC Programmer Quality Control Manager Mechanical Engineer Engineer Technician Industrial Engineer

COMPUTERIZED MANUFACTURING & MACHINING CAREER PATHWAYS
2015-2016

COMPUTER NUMERICAL CONTROL (CNC) OPERATOR
CIP 48.-0503.04

PATHWAY DESCRIPTION: CNC operators monitor and operate CNC (computer numerically controlled) machines to cut metal and plastic parts for the manufacturing industry. They select and download CNC programs and perform test operations to ensure the product is made to specifications. The CNC operator may be responsible for selecting and setting all tools required for producing the final precision part to customer specifications.

BEST PRACTICE CORE	**EXAMPLE ILP-RELATED CAREER TITLES**
Foundational Skills Necessary for Career-Ready Measure: (KOSSA/Industry Certification) **Complete (4) FOUR CREDITS:** • 470913 CMM 110 Fundamentals of Machine Tools-A • 470914 CMM 112 Fundamentals of Machine Tools-B • 470915 CMM 130 Manual Programming • 470925 CMM 132 CAD/CAM/CNC • 470929 Co-op (Machine Tool) <u>OR</u> 470932 Internship (Machine Tool)	Machine Operator Machinist Technician Machinist Maintenance Machinist CNC Programmer Quality Control Manager Mechanical Engineer Engineer Technician Industrial Engineer

COMPUTERIZED MANUFACTURING & MACHINING CAREER PATHWAYS
2015-2016

COMPUTERIZED MANUFACTURING & MACHINING
MANUFACTURING TRACK
CIP 48.0500.99

PATHWAY DESCRIPTION: The Computerized Manufacturing & Machining TRACK is designed as a pre-apprenticeship pathway for technical students to enter industry. Through the collaboration of local industry, technical school, program instructor, student and parents, a pre-apprenticeship agreement is signed. Local industry chooses 4 courses related to the required skills that will prepare the student to enter a four year apprenticeship sponsored by the company. Upon graduation the student under the discretion of the company; may be awarded reduced apprenticeship time or start at a higher wage.

BEST PRACTICE CORE	EXAMPLE ILP-RELATED CAREER TITLES
Foundational Skills Necessary for Career-Ready Measure: *(KOSSA/Industry Certification)* *Complete **(4) FOUR CREDITS:*** • (4)- Core courses chosen from the CMM valid course list by the company sponsoring a State Registered Apprenticeship.	Machine Operator Machinist Technician Machinist Maintenance Machinist CNC Machine Operator CNC Programmer Quality Control Manager Mechanical Engineer Engineer Technician Industrial Engineer

The Tech Ready Apprentices for Careers in Kentucky (*TRACK*) pre-apprenticeship program is a partnership between The Kentucky Department of Education's Office of Career and Technical Education and The Kentucky Labor Cabinet to provide pre-apprenticeship career pathway opportunities into registered apprenticeship programs to secondary students. This is a business and industry driven program to create a pipeline for students to enter post-secondary apprenticeship training.

Upon successful completion, the student will be awarded an industry certification by the employer or training organization through The Kentucky Labor Cabinet and all on-the-job hours worked will be counted towards the apprenticeship, if applicable. The certification will also count towards the local school district's college and career ready accountability index.

The specifics of the TRACK program vary and interested parties will need to confer with the Office of Career and Technical Education for the implementation process. There are no costs involved except wages for the student employee. The employer must have a registered apprenticeship program with The Kentucky Labor Cabinet. For more information, please refer to: http://education.ky.gov/CTE/cter/Pages/TRACK.aspx

As career pathways continue to expand, the ultimate rationale is that if an employer is willing to implement a Registered Apprenticeship program, a pipeline at the secondary level can be developed utilizing the TRACK program.

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COMPLEMENTARY OR ADVANCED COURSEWORK BEYOND CMM PATHWAY(s)
Upon completion of a pathway, additional coursework to enhance student learning is encouraged. Credits earned in Advanced or Complementary Coursework "Beyond the Pathway" may not be substituted for pathway courses in order to achieve Preparatory or Completer status.
• 480927 Editing & Subroutines (Conversational)
• 470926 Introduction to Conversational Programming
• 470979 Special Problems (CMM)
• Career Options
• JAG Courses

INDUSTRIAL MAINTENANCE TECHNOLOGY
CAREER PATHWAYS
2015-2016

MAINTENANCE MECHANIC
CIP 47.0303.01

PATHWAY DESCRIPTION: Maintenance Mechanics perform machine setup, troubleshooting, repairs and preventive maintenance service; including but not limited to, mechanical, electrical, pneumatic and hydraulic systems for industrial production and processing machinery and equipment. Reads and interprets equipment manuals and work orders to perform required maintenance and service. Analyses and inspects equipment, structures, or materials to identify the cause of errors or other problems or defects.

BEST PRACTICE CORE	EXAMPLE ILP-RELATED CAREER TITLES

Foundational Skills Necessary for Career-Ready Measure: *(KOSSA/Industry Certification)*
 	
     Complete (3) THREE CREDITS:
 	
 • 470321 Fluid Power
 • 470322 Industrial Maintenance Electrical Principles
 • 470318 Maintaining Industrial Equipment
 	
 Choose (1) ONE CREDIT from the following:
 	
 • 470348 Industrial Maintenance Electrical Motor Controls
 • 499925 Basic Troubleshooting*
 • 470301 Shop Management*
 • 499920 Basic Blueprint Reading*
 • 470351 Robotics and Industrial Automation (Ind Maint)
 • 470328 Welding for Maintenance
 • 470313 Machine Tool A (IMT)
 • 219901 Introduction to Engineering Design *(PLTW)*
 • 470308 Internship (Ind Maint) OR
    470305 Cooperative Education I (Ind Maint)
 	
     Note: (PLTW) courses require an agreement between
     Project Lead the Way and the Local School District.
 	
    Note: (*) Indicates half-credit (.5) course
	Maintenance Mechanic
	
	 Maintenance Inspector
	
	 Maintenance Supervisor
	
	 Industrial Engineer Tech
	
	 Mechanical Engineer

INDUSTRIAL MAINTENANCE TECHNOLOGY
CAREER PATHWAYS
2015-2016

ELECTRICAL TECHNICIAN
CIP 47.0303.02

PATHWAY DESCRIPTION: Electrical technicians apply electrical theory and related knowledge to diagnose and modify developmental or operational electrical machinery and electrical control equipment and circuitry in industrial or commercial plants and laboratories: Assembles and tests experimental motor-control devices, switch panels, transformers, generator windings, solenoids, and other electrical equipment and components according to engineering data and knowledge of electrical principles.

BEST PRACTICE CORE	EXAMPLE ILP-RELATED CAREER TITLES

Foundational Skills Necessary for Career-Ready Measure: (KOSSA/Industry Certification)
 	
Complete (3) THREE CREDITS:
 	
• 470322 Industrial Maintenance Electrical Principles
• 470348 Industrial Maintenance Electrical Motor Controls
• 470330 Industrial Maintenance of PLC
 	
Choose (1) ONE CREDIT from the following:
 	
• 499925 Basic Troubleshooting*
• 470301 Shop Management*
• 499920 Basic Blueprint Reading*
• 470328 Welding for Maintenance
• 470318 Maintaining Industrial Equipment
• 470351 Robotics and Industrial Automation
• 219901 Introduction to Engineering Design *(PLTW)*
• 470308 Internship (Ind Maint) <u>OR</u>
   470305 Cooperative Education I (Ind Maint)
 	
     Note: (PLTW) courses require an agreement between Project Lead the Way and the Local School District.
 	
    Note: (*) Indicates half-credit (.5) course
	Electrical Technician
	
	Electrical Supervisor
	
	Electrical Engineer

INDUSTRIAL MAINTENANCE TECHNOLOGY
CAREER PATHWAYS
2015-2016

MAINTENANCE MACHINIST
CIP 47.0303.03

PATHWAY DESCRIPTION: Maintenance Machinists set up and operate a variety of machine tools, and fits and assembles parts to fabricate or repair machine tools and maintain industrial machines, applying knowledge of mechanics, shop mathematics, metal properties, layout, and machining procedures. Observes, listens and diagnoses operating machinery or equipment to correct machine malfunction and determine need for adjustment or repair.

BEST PRACTICE CORE	EXAMPLE ILP-RELATED CAREER TITLES

Foundational Skills Necessary for Career-Ready Measure: *(KOSSA/Industry Certification)*
 	
 Complete (3) THREE CREDITS:
 	
 • 470921 Blueprint Reading for Machinist
 • 470313 Machine Tool A (IMT)
 • 470314 Machine Tool B (IMT)
 	
 Choose (1) ONE CREDIT from the following:
 	
 • 470360 Applied Machining I
 • 470301 Shop Management*
 • 499925 Basic Troubleshooting*
 • 470302 Basic Blueprint Reading*
 • 470318 Maintaining Industrial Equipment
 • 470328 Welding for Maintenance
 • 470322 Industrial Maintenance Electrical Principles
 • 219901 Introduction to Engineering Design *(PLTW)*
 • 470308 Internship (Ind Maint) <u>OR</u>
    470305 Cooperative Education I (Ind Maint)
 	
      Note: (PLTW) courses require an agreement between
      Project Lead the Way and the Local School District.
	Maintenance Machinist
	
	 Maintenance Mechanic
	
	 Mechanical Engineer
	
	 Industrial Engineer

INDUSTRIAL MAINTENANCE TECHNOLOGY
CAREER PATHWAYS
2015-2016

FLUID POWER MECHANIC
CIP 47.0303.04

PATHWAY DESCRIPTION: Fluid Power Mechanics fabricate, assembly, service, maintain, repair, and tests industrial hydraulic equipment. Applies knowledge of hydraulic, pneumatic, and electrical principles to test equipment, and analyzes and records data, such as fluid pressure, flow measure, and power loss due to friction and parts wear. The fluid power mechanic understands hydraulic symbols, reads system schematics, understands electrical principles, and is skilled in test procedures and instrumentation.

BEST PRACTICE CORE	EXAMPLE ILP-RELATED CAREER TITLES

Foundational Skills Necessary for Career-Ready Measure: (KOSSA/Industry Certification)
 	
 Complete (3) THREE CREDITS:
 	
 • 470321 Fluid Power
 • 470316 Advanced Hydraulic Systems
 • 470326 Pneumatic Systems
 	
 Choose (1) ONE CREDIT from the following:
 	
 • 499925 Basic Troubleshooting*
 • 499920 Basic Blueprint Reading*
 • 470301 Shop Management*
 • 470351 Robotics and Industrial Automation
 • 470322 Industrial Maintenance Electrical Principles
 • 470318 Maintaining Industrial Equipment
 • 470328 Welding for Maintenance
 • 219901 Introduction to Engineering Design *(PLTW)*
 • 470308 Internship (Ind Maint) <u>OR</u>
  470305 Cooperative Education I (Ind Maint)
 	
  Note: (PLTW) courses require an agreement between Project Lead the Way and the Local School District.
 	
  Note: (*) Indicates half-credit (.5) course
	Industrial Hydraulic Technician
	
	 Mechanical Engineer
	
	 Industrial Engineer
	
	 Pneumatic Specialist
	
	 Fluid Power Supervisor
	
	 Hydraulic Engineer

INDUSTRIAL MAINTENANCE TECHNOLOGY
CAREER PATHWAYS
2015-2016

REFRIGERATION TECHNICIAN
CIP 47.0303.05

PATHWAY DESCRIPTION: Refrigeration technician's service, and repair refrigeration systems and equipment such as condensing units, compressors, and evaporators. Some duties of the job include connecting refrigeration lines and electrical power sources, handling hazardous refrigerant substances, and checking systems and equipment for leaks. Technicians will often use system blueprints or manufacturers' instructions to complete a job. When working on air conditioning and refrigeration systems, technicians must follow government regulations regarding the conservation, recovery, and recycling of refrigerants. This includes the proper handling and disposal of fluids and pressurized gases.

BEST PRACTICE CORE	EXAMPLE ILP-RELATED CAREER TITLES

Foundational Skills Necessary for Career-Ready Measure: *(KOSSA/Industry Certification)*
 	
 Complete (3) THREE CREDITS:
 	
 • 470349 Refrigeration Fundamentals (IMT)
 • 470365 HVAC Electricity (IMT)
 • 470358 Electrical Components
 	
 Choose (1) ONE CREDIT from the Following:
 	
 • 499925 Basic Troubleshooting*
 • 470363 Heating & Humidification (IMT)
 • 470361 Cooling & Dehumidification (IMT)
 • 470318 Maintaining Industrial Equipment
 • 499920 Basic Blueprint Reading*
 • 470301 Shop Management*
 • 219901 Introduction to Engineering Design *(PLTW)*
 • 470308 Internship (Ind Maint) <u>OR</u>
   470305 Cooperative Education I (Ind Maint)
 	
   Note: (PLTW) courses require an agreement between
   Project Lead the Way and the Local School District.
 	
   Note: (*) Indicates half-credit (.5) course
	Refrigeration Specialist
	
	 Mechanical Engineer
	
	 Industrial Engineer
	
	 Refrigerant Supervisor
	
	 Refrigeration Engineer

INDUSTRIAL MAINTENANCE TECHNOLOGY CAREER PATHWAYS 2015-2016

IMT TRACK CIP 48.0500.99

PATHWAY DESCRIPTION: The Industrial Maintenance Manufacturing TRACK is designed as a pre-apprenticeship pathway for technical students to enter industry. Through the collaboration of local industry, technical school, program instructor, student and parents, a pre-apprenticeship agreement is signed. Local industry chooses 4 courses related to the required skills that will prepare the student to enter a four year apprenticeship sponsored by the company.

Upon graduation the student under the discretion of the company; may be awarded reduced apprenticeship time or start at a higher wage.

BEST PRACTICE CORE	EXAMPLE ILP-RELATED CAREER TITLES
Foundational Skills Necessary for Career-Ready Measure: (KOSSA/Industry Certification) *Complete (4) FOUR CREDITS:* • (4)- Core courses chosen from the IMT valid course list by the company sponsoring a State Registered Apprenticeship.	Engineer Technician Maintenance Mechanic Fluid Power Mechanic Maintenance Machinist Refrigeration Technician Electrical Engineer Industrial Engineer Mechanical Engineer

The Tech Ready Apprentices for Careers in Kentucky (*TRACK*) pre-apprenticeship program is a partnership between The Kentucky Department of Education's Office of Career and Technical Education and The Kentucky Labor Cabinet to provide pre-apprenticeship career pathway opportunities into registered apprenticeship programs to secondary students. This is a business and industry driven program to create a pipeline for students to enter post-secondary apprenticeship training.

Upon successful completion, the student will be awarded an industry certification by the employer or training organization through The Kentucky Labor Cabinet and all on-the-job hours worked will be counted towards the apprenticeship, if applicable. The certification will also count towards the local school district's college and career ready accountability index.

The specifics of the TRACK program vary and interested parties will need to confer with the Office of Career and Technical Education for the implementation process. There are no costs involved except wages for the student employee. The employer must have a registered apprenticeship program with The Kentucky Labor Cabinet. For more information, please refer to: http://education.ky.gov/CTE/cter/Pages/TRACK.aspx

As career pathways continue to expand, the ultimate rationale is that if an employer is willing to implement a Registered Apprenticeship program, a pipeline at the secondary level can be developed utilizing the TRACK program.

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COMPLEMENTARY OR ADVANCED COURSEWORK BEYOND IMT PATHWAY(s)
Upon completion of a pathway, additional coursework to enhance student learning is encouraged. Credits earned in Advanced or Complementary Coursework "Beyond the Pathway" may not be substituted for pathway courses in order to achieve Preparatory or Completer status.
• Career Options
• JAG Courses
• 470336 Special Topics – Industrial Maintenance Technology

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METAL FABRICATION CAREER PATHWAYS
2015-2016

SHEET METAL TECHNICIAN
CIP 48.0506.01

PATHWAY DESCRIPTION: The Sheet Metal Technician creates parts to the specifications required through line development and fabrication. Sheet metal is measured and sheet metal patterns are cut and formed for the determined available space. Sheet metal technicians must have strong math skills for the development of geometrical parts. The sheet metal technician provides direct support to manufacturing for the design, fabrication, modification, and evaluation of parts, assemblies, components and sub-assemblies according to specifications.

BEST PRACTICE CORE	EXAMPLE ILP-RELATED CAREER TITLES
Foundational Skills Necessary for Career-Ready Measure: (KOSSA/Industry Certification) *Complete **(4) FOUR CREDITS:*** 480816 Metal Trade Information & Metals 480813 Parallel Line Layout 480817 Sheet Metal 1-A 480818 Sheet Metal 1-B 480803 Co-op I (Metal Fab) <u>OR</u> 480806 Internship (Metal Fab)	Sheet Metal Production Technician Sheet Metal Mechanic Fabrication Technician Layout Technician Precision Sheet Metal Technician Manufacturing Engineer Sheet Metal Engineer

METAL FABRICATION TRACK
CIP 48.0500.99

PATHWAY DESCRIPTION: The Metal Fabrication TRACK is designed as a pre-apprenticeship pathway for technical students to enter industry. Through the collaboration of local industry, technical school, program instructor, student and parents, a pre-apprenticeship agreement is signed. Local industry chooses 4 courses related to the required skills that will prepare the student to enter a four year apprenticeship sponsored by the company. Upon graduation the student under the discretion of the company; may be awarded reduced apprenticeship time or start at a higher wage.

BEST PRACTICE CORE	EXAMPLE ILP-RELATED CAREER TITLES
Foundational Skills Necessary for Career-Ready Measure: (KOSSA/Industry Certification) *Complete (4) FOUR CREDITS:* • (4)- Core courses chosen from the Metal Fabrication valid course list by the company sponsoring a State Registered Apprenticeship.	Sheet Metal Production Technician Sheet Metal Mechanic Fabrication Technician Layout Technician Precision Sheet Metal Technician Manufacturing Engineer Sheet Metal Worker Sheet Metal Engineer

The Tech Ready Apprentices for Careers in Kentucky (*TRACK*) pre-apprenticeship program is a partnership between The Kentucky Department of Education's Office of Career and Technical Education and The Kentucky Labor Cabinet to provide pre-apprenticeship career pathway opportunities into registered apprenticeship programs to secondary students. This is a business and industry driven program to create a pipeline for students to enter post-secondary apprenticeship training.

Upon successful completion, the student will be awarded an industry certification by the employer or training organization through The Kentucky Labor Cabinet and all on-the-job hours worked will be counted towards the apprenticeship, if applicable. The certification will also count towards the local school district's college and career ready accountability index.

The specifics of the TRACK program vary and interested parties will need to confer with the Office of Career and Technical Education for the implementation process. There are no costs involved except wages for the student employee. The employer must have a registered apprenticeship program with The Kentucky Labor Cabinet. For more information, please refer to: http://education.ky.gov/CTE/cter/Pages/TRACK.aspx

As career pathways continue to expand, the ultimate rationale is that if an employer is willing to implement a Registered Apprenticeship program, a pipeline at the secondary level can be developed utilizing the TRACK program.

COMPLEMENTARY OR ADVANCED COURSEWORK BEYOND THE METAL FAB PATHWAY(s)
Upon completion of a pathway, additional coursework to enhance student learning is encouraged. Credits earned in Advanced or Complementary Coursework "Beyond the Pathway" may not be substituted for pathway courses in order to achieve Preparatory or Completer status.
• 480819 Sheer Metal II-A
• 480820 Sheet Metal II-B
• 480814 Radial Line Development
• 480899 Special Topics- Metal Fabrication
• Career Options
• JAG Courses

WELDING TECHNOLOGY
CAREER PATHWAYS
2015-2016

WELDER-ENTRY LEVEL
CIP 48.0508.01

PATHWAY DESCRIPTION: An Entry Level Welder demonstrates the ability to assist lead welders in the fabrication of steel and metal structures. Must be adept at performing basic welding functions and calculating dimensions as well as operating power equipment, grinders and other related tools. Must be proficient in reading and interpreting basic blueprints and following work procedure specifications (WPS).

BEST PRACTICE CORE	EXAMPLE ILP-RELATED CAREER TITLES

Foundational Skills Necessary for Career-Ready Measure: (KOSSA/Industry Certification)
 	
 Complete (3) THREE CREDITS:
 	
 • 480505 Blueprint Reading for Welding OR
   499920 Basic Blueprint Reading* AND 480503 Basic Welding A*
 • 480523 Oxy-fuel Systems OR
   480501 Cutting Processes
 • 480521 Shielded Metal Arc Welding (SMAW)
 	
 Choose (1) ONE CREDIT from the following:
 	
 • 480522 Gas Metal Arc Welding
 • 480533 GMAW Groove Lab
 • 480528 SMAW Groove Welds with Backing Lab
 • 480535 SMAW Open Groove Lab
 • 480525 Gas Tungsten Arc Welding
 • 219901 Introduction to Engineering Design *(PLTW)*
 • 480541 Cooperative Education (Welding) OR
   480544 Internship (Welding)
 	
 Note: (PLTW) courses require an agreement between Project Lead the Way and the Local School District.
 	
 Note: (*) Indicates half-credit (.5) course
	Combination Welder
	
	 Pipe Welder
	
	 Ironworker
	
	 Tungsten Inert Gas (TIG) Welder
	
	 Certified Welding Inspector (CWI)
	
	 Certified Welding Educator (CWE)
	
	 Welding Engineer
	
	 Structural Engineer
	
	 Mechanical Engineer

WELDING TECHNOLOGY
CAREER PATHWAYS
2015-2016

COMBINATION ARC WELDER
CIP 48.0508.03

PATHWAY DESCRIPTION: Combination Arc Welders set up and align materials to be joined by either the Shielded Metal Arc (SMAW) or Gas Metal Arc welding process. Welds together metal components of products in an assembly setting, such as automobiles, appliances, and aircraft, as specified by layout, blueprints, diagram, work order, procedures, or oral instructions, using the Gas Metal Arc welding process. Welds together structural steel components in a construction setting using the Shielded Metal Arc (SMAW) process. Must be knowledgeable of the required geometry and physical properties of the materials to be welded and capable of passing required weld certifications.

BEST PRACTICE CORE	EXAMPLE ILP-RELATED CAREER TITLES

Foundational Skills Necessary for Career-Ready Measure: *(KOSSA/Industry Certification)*
 	
Complete (4) FOUR CREDITS:
 	
• 480505 Blueprint Reading for Welding OR
  499920 Basic Blueprint Reading* AND 480503 Basic Welding A*
• 480523 Oxy-fuel Systems OR
  480501 Cutting Processes
• 480521 Shielded metal Arc Welding (SMAW)
• 480522 Gas Metal Arc Welding
• 480541 Cooperative Education (Welding) OR
  480544 Internship (Welding)
 	
Note: (*) Indicates half-credit (.5) course
	Combination Welder
	
	Pipe Welder
	
	Ironworker
	
	Tungsten Inert Gas (TIG) Welder
	
	Certified Welding
	
	Inspector (CWI)
	
	Certified Welding Educator (CWE)
	
	Welding Engineer
	
	Structural Engineer
	
	Mechanical Engineer

WELDING TECHNOLOGY
CAREER PATHWAYS
2015-2016

GAS METAL ARC WELDER
CIP 48.0508.04

PATHWAY DESCRIPTION: Welds together metal components of products, such as pipelines, automobiles, boilers, ships, aircraft, and mobile homes, as specified by layout, blueprints, diagram, work order, welding procedures, or oral instructions, using electric arc-welding equipment (MIG) process. Knowledgeable in properly setting the gas metal arc welding equipment for the product material required.

BEST PRACTICE CORE	**EXAMPLE ILP-RELATED CAREER TITLES**

Foundational Skills Necessary for Career-Ready Measure: (KOSSA/Industry Certification)
 	
     Complete (3) THREE CREDITS:
 	
 • 480505 Blueprint Reading for Welding <u>OR</u>
   499920 Basic Blueprint Reading* <u>AND</u> 480503 Basic Welding A*
 • 480523 Oxy-fuel Systems <u>OR</u>
   480501 Cutting Processes
 • 480522 Gas Metal Arc Welding
 	
 Choose (1) ONE CREDIT from the following:
 	
 • 480533 GMAW Groove Lab
 • 480540 GMAW Pipe Lab A
 • 480525 Gas Tungsten Arc Welding
 • 480534 GMAW Aluminum Lab*
 • 219901 Introduction to Engineering Design *(PLTW)*
 • 480541 Cooperative Education (Welding) <u>OR</u>
   480544 Internship (Welding)
 	
     Note: (PLTW) courses require an agreement between
    Project Lead the Way and the Local School District.
 	
     Note: (*) Indicates half-credit (.5) course
	Combination Welder
	
	 Pipe Welder
	
	 Ironworker
	
	 Tungsten Inert Gas (TIG) Welder
	
	 Certified Welding Inspector (CWI)
	
	 Certified Welding Educator (CWE)
	
	 Welding Engineer
	
	 Structural Engineer
	
	 Mechanical Engineer

WELDING TECHNOLOGY
CAREER PATHWAYS
2015-2016

SHIELDED METAL ARC WELDER
CIP 48.0508.06

PATHWAY DESCRIPTION: Shielded metal arc welders work primarily with heavy plate steel and pipe welding in the construction industry, including the building construction and pipeline industries. The oil and gas industry also uses shield metal arc welders for both construction and repair of production facilities. They must set up equipment and welds parts, using the shielded metal arc process (SMAW) while being knowledgeable of the required geometry, physical properties of weld shrinkage and welding techniques.

BEST PRACTICE CORE	EXAMPLE ILP-RELATED CAREER TITLES

Foundational Skills Necessary for Career-Ready Measure:
(KOSSA/Industry Certification)
 	
    Complete (3) THREE CREDITS:
 	
• 480505 Blueprint Reading for Welding <u>OR</u>
  499920 Basic Blueprint Reading* <u>AND</u> 480503 Basic Welding A*
• 480523 Oxy-fuel Systems <u>OR</u>
  480501 Cutting Processes
• 480521 Shielded metal Arc Welding (SMAW)
 	
    Choose (1) ONE CREDIT from the following:
 	
• 480528 SMAW Groove Welds with Backing Lab
• 480535 SMAW Open Groove Lab
• 480537 Shielded Metal Arc Welding Pipe Lab B
• 219901 Introduction to Engineering Design ***(PLTW)***
• 480541 Cooperative Education (Welding) <u>OR</u>
  480544 Internship (Welding)
 	
      Note: (PLTW) courses require an agreement between
      Project Lead the Way and the Local School District.
 	
     Note: (*) Indicates half-credit (.5) course
	Combination Welder
	
	Pipe Welder
	
	Ironworker
	
	Tungsten Inert Gas (TIG) Welder
	
	Certified Welding Inspector (CWI)
	
	Certified Welding Educator (CWE)
	
	Welding Engineer
	
	Structural Engineer
	
	Mechanical Engineer

WELDING TECHNOLOGY CAREER PATHWAYS 2015-2016

WELDING TECHNOLOGY TRACK
CIP 48.0500.99

PATHWAY DESCRIPTION: The Welding Technology Manufacturing TRACK is designed as a pre-apprenticeship pathway for technical students to enter industry. Through the collaboration of local industry, technical school, program instructor, student and parents, a pre-apprenticeship agreement is signed. Local industry chooses 4 courses related to the required skills that will prepare the student to enter a four year apprenticeship sponsored by the company. Upon graduation the student under the discretion of the company; may be awarded reduced apprenticeship time or start at a higher wage.

BEST PRACTICE CORE	EXAMPLE ILP-RELATED CAREER TITLES
Foundational Skills Necessary for Career-Ready Measure: *(KOSSA/Industry Certification)* *Complete (4) FOUR CREDITS:* • (4)- Core courses chosen from the Welding valid course list by the company sponsoring a State Registered Apprenticeship.	Combination Welder Pipe Welder Ironworker Tungsten Inert Gas (TIG) Welder Certified Welding Inspector (CWI) Certified Welding Educator (CWE) Welding Engineer Structural Engineer Mechanical Engineer

The Tech Ready Apprentices for Careers in Kentucky (*TRACK*) pre-apprenticeship program is a partnership between The Kentucky Department of Education's Office of Career and Technical Education and The Kentucky Labor Cabinet to provide pre-apprenticeship career pathway opportunities into registered apprenticeship programs to secondary students. This is a business and industry driven program to create a pipeline for students to enter post-secondary apprenticeship training.

Upon successful completion, the student will be awarded an industry certification by the employer or training organization through The Kentucky Labor Cabinet and all on-the-job hours worked will be counted towards the apprenticeship, if applicable. The certification will also count towards the local school district's college and career ready accountability index.

The specifics of the TRACK program vary and interested parties will need to confer with the Office of Career and Technical Education for the implementation process. There are no costs involved except wages for the student employee. The employer must have a registered apprenticeship program with The Kentucky Labor Cabinet. For more information, please refer to: http://education.ky.gov/CTE/cter/Pages/TRACK.aspx

As career pathways continue to expand, the ultimate rationale is that if an employer is willing to implement a Registered Apprenticeship program, a pipeline at the secondary level can be developed utilizing the TRACK program.

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WELDING TECHNOLOGY
CAREER PATHWAYS
2015-2016

WELDING PIPEFITTERS TRACK
CIP 48.0508.99

PATHWAY DESCRIPTION: The Welding Pipefitters TRACK is designed as a pre-apprenticeship pathway for technical students to enter the Pipefitters Apprenticeship. Representatives from all (5) Pipefitter unions chose 4 courses from the Welding valid course list. These courses will prepare the student with the required skills to enter the four year pipefitters' apprenticeship. Additional courses are also listed enhancing the students skill set. Each student must Pass the Kentucky Department of Transportation (KY DOT) written exam and the KY DOT 3G performance exam. Upon completion the student will be offered an interview for the Pipefitters Apprenticeship.

BEST PRACTICE CORE	EXAMPLE ILP-RELATED CAREER TITLES
Foundational Skills Necessary for Career-Ready Measure: (KOSSA/Industry Certification) **Complete (4) FOUR REQUIRED CREDITS:** • 480523 Oxy-fuel Systems <u>OR</u> 480501 Cutting Processes • 480521 Shielded Metal Arc Welding (SMAW) • 480528 SMAW Groove Welds with Backing Lab • 480535 SMAW open Groove Lab ***Additional coursework to ENHANCE pathway:*** • 480525 Gas Tungsten Arc Welding • 480530 GTAW Groove Lab • 480538 Gas Tungsten Arc Welding Pipe Lab A • 480595 IEX 293 Special Problems (Welding) See information specific to TRACK on previous page.	Combination Welder Pipe Welder Ironworker Tungsten Inert Gas (TIG) Welder Certified Welding Inspector (CWI) Certified Welding Educator (CWE) Welding Engineer Structural Engineer Mechanical Engineer

COMPLEMENTARY OR ADVANCED COURSEWORK BEYOND THE WELDING PATHWAY(s)

Upon completion of a pathway, additional coursework to enhance student learning is encouraged.

Credits earned in Advanced or Complementary Coursework "Beyond the Pathway" may not be substituted for pathway courses in order to achieve Preparatory or Completer status.

- 480536 Shielded Metal Arc Welding Pipe Lab A
- 480507 Welding Certification
- 480599 Special Topics-Welding
- Career Options
- JAG Courses

WOOD MANUFACTURING CAREER PATHWAYS
2015-2016

AUTOMATED WOOD PROCESSER
CIP 48.0703.01

PATHWAY DESCRIPTION: Adjusts, sets up, aligns, cleans machines and performs minor repairs; secures wood into place and sets saws to produce specified sizes of plank and board to be cut; starts machines and feeds stock onto cutting saws, and operates automatic feeding mechanisms; raises and lowers saws to trim boards and remove defects such as rot and splits; controls lathes and slicing machines to produce veneers, and laminates veneers using glue; verifies dimensions of cut stock and accuracy of cuts; checks saws and other machines for safety, sharpness and correct functioning.

BEST PRACTICE CORE	EXAMPLE ILP-RELATED CAREER TITLES
Foundational Skills Necessary for Career-Ready Measure: (KOSSA/Industry Certification)	Production Woodworker
	Machine Setter
Complete (3) THREE CREDITS:	Cabinet Maker
	Millworker
• 480110 Introduction to Computer Aided Drafting	CNC Operator
• 480740 Wood Product Manufacturing	
• 480711 Introduction to Panel Processing	Wood Product Supervisor
	Furniture Maker
Choose (1) ONE CREDIT from the following:	Wood Technologist
	Wood Product Engineer
• 480733 Advanced Wood Processing	
• 480725 CAD for Wood Technology*	
• 480720 Wood Finishing*	
• 480721 Furniture Technology	
• 480716 Lumber Grading and Drying	
• 480719 Technical Drawing and Blueprint Reading*	
• 219901 Introduction to Engineering Design *(PLTW)*	
• 480741 Co-op I (Wood) <u>OR</u> 480744 Internship (Wood)	
Note: (PLTW) courses require an agreement between Project Lead the Way and the Local School District.	
Note: (*) Indicates half-credit (.5) course	

WOOD MANUFACTURING CAREER PATHWAYS
2015-2016

CABINETMAKER
CIP 48.0703.02

PATHWAY DESCRIPTION: Cabinet makers are specific types of woodworkers who create and install cabinets in bathrooms, kitchens, other areas of homes and businesses. Typical duties of cabinet makers include designing custom cabinets, making cabinets, installing cabinetry, consulting with clients and other duties as needed. Cabinet makers are responsible for cutting and shaping wood, preparing surfaces and forming a completed product.

BEST PRACTICE CORE	EXAMPLE ILP-RELATED CAREER TITLES
Foundational Skills Necessary for Career-Ready Measure: (KOSSA/Industry Certification) *Complete (3) THREE CREDITS:* • 480719 Technical Drawing and Blueprint Reading* <u>AND</u> 480720 Wood Finishing* • 480740 Wood Product Manufacturing • 480731 Cabinet Making Technology *Choose (1) ONE CREDIT from the following:* • 480733 Advanced Wood Processing • 480725 CAD for Wood Technology* • 480721 Furniture Technology • 480110 Introduction to Computer Aided Drafting • 480716 Lumber Grading and Drying • 219901 Introduction to Engineering Design *(PLTW)* • 480741 Co-op I (Wood) <u>OR</u> 480744 Internship (Wood) Note: (PLTW) courses require an agreement between Project Lead the Way and the Local School District. Note: (*) Indicates half-credit (.5) course	Production Woodworker Machine Setter Millworker CNC Operator Wood Product Supervisor Furniture Maker Wood Technologist Wood Product Engineer

WOOD MANUFACTURING CAREER PATHWAYS
2015-2016

FURNITURE MAKER
CIP 48.0703.03

PATHWAY DESCRIPTION: Furniture makers are specific types of woodworkers who design and create furniture for homes and businesses. Typical duties of furniture makers include designing custom furniture, making furniture, and consulting with clients to meet their specifications. Furniture makers are responsible for cutting and shaping wood, preparing surfaces and forming a completed product.

BEST PRACTICE CORE	**EXAMPLE ILP-RELATED CAREER TITLES**
Foundational Skills Necessary for Career-Ready Measure: (KOSSA/Industry Certification) *Complete (3) THREE CREDITS:* • 480719 Technical Drawing and Blueprint Reading* AND 480720 Wood Finishing* • 480740 Wood Product Manufacturing • 480721 Furniture Technology *Choose (1) ONE CREDIT from the following:* • 480733 Advanced Wood Processing • 480725 CAD for Wood Technology* • 480110 Introduction to Computer Aided Drafting • 480716 Lumber Grading and Drying • 219901 Introduction to Engineering Design *(PLTW)* • 480741 Co-op I (Wood) OR 480744 Internship (Wood) Note: (PLTW) courses require an agreement between Project Lead the Way and the Local School District. Note: (*) Indicates half-credit (.5) course	Production Woodworker Machine Setter Cabinet Maker Millworker CNC Operator Wood Product Supervisor Wood Technologist Wood Product Engineer

WOOD MANUFACTURING CAREER PATHWAYS
2015-2016

MILLWORKER
CIP 48.0703.04

PATHWAY DESCRIPTION: Furniture makers are specific types of woodworkers who design and create furniture for homes and businesses. Typical duties of furniture makers include designing custom furniture, making furniture, and consulting with clients to meet their specifications. Furniture makers are responsible for cutting and shaping wood, preparing surfaces and forming a completed product.

BEST PRACTICE CORE	EXAMPLE ILP-RELATED CAREER TITLES

Foundational Skills Necessary for Career-Ready Measure: (KOSSA/Industry Certification)
 	
   Complete (3) THREE CREDITS:
 	
• 480719 Technical Drawing and Blueprint Reading* <u>AND</u> 480720 Wood Finishing*
• 480716 Lumber Grading and Drying
• 480717 Millwork Technology
 	
   Choose (1) ONE CREDIT from the following:
 	
• 480733 Advanced Wood Processing
• 480725 CAD for Wood Technology*
• 480110 Introduction to Computer Aided Drafting
• 480740 Wood Product Manufacturing
• 480721 Furniture Technology
• 219901 Introduction to Engineering Design *(PLTW)*
• 480741 Co-op I (Wood) <u>OR</u> 480744 Internship (Wood)
 	
Note: (PLTW) courses require an agreement between Project Lead the Way and the Local School District.
 	
Note: (*) Indicates half-credit (.5) course
	Production Woodworker
	
	Machine Setter
	
	Cabinet Maker
	
	CNC Operator
	
	Wood Product Supervisor
	
	Furniture Maker
	
	Wood Technologist
	
	Wood Product Engineer

WOOD MANUFACTURING CAREER PATHWAYS 2015-2016

WOOD CNC OPERATOR/PROGRAMMER
CIP 48.0703.05

PATHWAY DESCRIPTION: CNC Operators and Programmers set up, program, operate, or tend computerized or manual woodworking machines, such as drill presses, lathes, shapers, routers, sanders, planers, or wood-nailing machines to produce parts from a variety of materials. They must monitor operation of machines and make adjustments to correct problems and ensure conformance to specifications. They must be proficient using inspection tooling (i.e., micrometers, calipers, gages) to accurately measure part features.

BEST PRACTICE CORE	EXAMPLE ILP-RELATED CAREER TITLES
Foundational Skills Necessary for Career-Ready Measure: *(KOSSA/Industry Certification)* *Complete (3) THREE CREDITS:* • 480719 Technical Drawing and Blueprint Reading* <u>AND</u> 480720 Wood Finishing* • 480110 Introduction to Computer Aided Drafting • 480733 Advanced Wood Processing *Choose (1) ONE CREDIT from the following:* • 480716 Lumber Grading and Drying • 480717 Millwork Technology • 480733 Advanced Wood Processing • 480725 CAD for Wood Technology* • 480740 Wood Product Manufacturing • 480721 Furniture Technology • 219901 Introduction to Engineering Design *(PLTW)* • 480741 Co-op I (Wood) <u>OR</u> 480744 Internship (Wood) Note: (PLTW) courses require an agreement between Project Lead the Way and the Local School District. Note: (*) Indicates half-credit (.5) course	Production Woodworker Machine Setter Cabinet Maker Millworker Wood Product Supervisor Furniture Maker Wood Technologist Wood Product Engineer

WOOD MANUFACTURING CAREER PATHWAYS
2015-2016

WOOD MANUFACTURING TRACK
CIP 48.0500.99

PATHWAY DESCRIPTION: The Wood Manufacturing TRACK is designed as a pre-apprenticeship pathway for technical students to enter industry. Through the collaboration of local industry, technical school, program instructor, student and parents, a pre-apprenticeship agreement is signed. Local industry chooses 4 courses related to the required skills that will prepare the student to enter a four year apprenticeship sponsored by the company. Upon graduation the student under the discretion of the company; may be awarded reduced apprenticeship time or start at a higher wage.

BEST PRACTICE CORE	EXAMPLE ILP-RELATED CAREER TITLES
Foundational Skills Necessary for Career-Ready Measure: (KOSSA/Industry Certification) *Complete (4) FOUR CREDITS:* • (4)- Core courses chosen from the Wood Manufacturing valid course list by the company sponsoring a State Registered Apprenticeship.	Production Woodworker Machine Setter Cabinet Maker Millworker CNC Operator Wood Product Supervisor Furniture Maker Wood Technologist Wood Product Engineer

The Tech Ready Apprentices for Careers in Kentucky (*TRACK*) pre-apprenticeship program is a partnership between The Kentucky Department of Education's Office of Career and Technical Education and The Kentucky Labor Cabinet to provide pre-apprenticeship career pathway opportunities into registered apprenticeship programs to secondary students. This is a business and industry driven program to create a pipeline for students to enter post-secondary apprenticeship training.

Upon successful completion, the student will be awarded an industry certification by the employer or training organization through The Kentucky Labor Cabinet and all on-the-job hours worked will be counted towards the apprenticeship, if applicable. The certification will also count towards the local school district's college and career ready accountability index.

The specifics of the TRACK program vary and interested parties will need to confer with the Office of Career and Technical Education for the implementation process. There are no costs involved except wages for the student employee. The employer must have a registered apprenticeship program with The Kentucky Labor Cabinet. For more information, please refer to: http://education.ky.gov/CTE/cter/Pages/TRACK.aspx

As career pathways continue to expand, the ultimate rationale is that if an employer is willing to implement a Registered Apprenticeship program, a pipeline at the secondary level can be developed utilizing the TRACK program.

COMPLEMENTARY OR ADVANCED COURSEWORK BEYOND WOOD MANUFACTURING PATHWAY(s)
Upon completion of a pathway, additional coursework to enhance student learning is encouraged.   Credits earned in Advanced or Complementary Coursework "Beyond the Pathway" may not be substituted for pathway courses in order to achieve Preparatory or Completer status.
• 480795 Special Problems (for Wood Manufacturing)
• Career Options
• JAG Courses

MEDIA ARTS

MEDIA ARTS CAREER PATHWAYS
2015-2016

CINEMATOGRAPHY AND VIDEO PRODUCTION PATHWAY
CIP 09.0701.00

PATHWAY DESCRIPTION: This career pathway prepares students to communicate dramatic information, ideas, moods, and feelings through the making and producing of videos and cinematographic expression. The pathway includes the theory of video, video technology and equipment operation, video production, video directing, video editing, cinematographic art, video and audio technique, and multi-media production. It prepares students to function as staff, producers, directors, and managers of media programming and media organizations. Includes writing and editing; performing; media regulations, law, and policy; aesthetic meaning, appreciation and analysis; construction, development, processing, modeling, simulation and programming of audio and moving image programs and messages; their transmission, distribution and marketing, as well as contextual, cultural and historical aspects and considerations.

BEST PRACTICE CORE	**EXAMPLE ILP-RELATED CAREER TITLES**
Foundational Skills Necessary for Career-Ready Measure: *(KOSSA/Industry Certification)* *Complete (4) FOUR CREDITS from the following:* • 480901 Introduction to Media Arts (New Course 15-16) • 480910 Video Studio Fundamentals (New Course 15-16) • 480911 Studio Directing and Performance (New Course 15-16) • 480912 Advanced Studio Production (Moving Image) (New Course 15-16)	Advertising Copywriter Audio-Visual Technician Broadcast Technician Camera Operator Director Director of Photography Film and TV Crew Film Editor Photographer Photojournalist Radio / Television Program Director

MEDIA ARTS CAREER PATHWAYS
2015-2016

GRAPHIC DESIGN PATHWAY
CIP 50.0401.00

PATHWAY DESCRIPTION: This Career Pathway prepares students to apply Media Arts skills that focus on the general principles and techniques for effectively communicating ideas and information, and packaging products, in digital and other formats to business and consumer audiences, and that may prepare individuals in any of the applied art media, including: aesthetic meaning, appreciation and analysis; construction, development, processing, modeling, simulation and programming of interactive experiences; their transmission, distribution and marketing, as well as contextual, cultural and historical aspects and considerations.

BEST PRACTICE CORE	EXAMPLE ILP-RELATED CAREER TITLES
Foundational Skills Necessary for Career-Ready Measure: (KOSSA/Industry Certification) *Complete **(4) FOUR CREDITS** from the following:* • 480901 Introduction to Media Arts (New Course 15-16) • 480920 Two-Dimensional Media (New Course 15-16) • 480921 Digital Imaging (New Course 15-16) • 480922 Advanced Production Design (New Course 15-16)	Advertising Account Executive Advertising Copywriter Art Director Graphic Designer Sign Maker Visual Merchandiser

MEDIA ARTS CAREER PATHWAYS
2015-2016

INTERACTIVE MEDIA ARTS
CIP 10.0304.00

PATHWAY DESCRIPTION: This Career Pathway prepares students to use computer applications and related visual and sound imaging techniques to manipulate images and information originating as video, still photographs, digital copy, soundtracks, and physical objects in order to communicate messages simulating real-world content. Includes instruction in specialized camerawork and equipment operation and maintenance, image capture, computer applications, dubbing, and applications to specific commercial, industrial, and entertainment needs, including: aesthetic meaning, appreciation and analysis; construction, development, processing, modeling, simulation and programming of interactive experiences; their transmission, distribution and marketing, as well as contextual, cultural and historical aspects and considerations.

BEST PRACTICE CORE	EXAMPLE ILP-RELATED CAREER TITLES
Foundational Skills Necessary for Career-Ready Measure: (KOSSA/Industry Certification) *Complete **(4) FOUR CREDITS** from the following:* • 480901 Introduction to Media Arts (New Course 15-16) • 480902 Interactive Design (New Course 15-16) • 480903 Moving Image, Animation (New Course 15-16) • 480904 Virtual Design (New Course 15-16)	Advertising Account Executive Advertising Copywriter Art Director Audio-Visual Technician Broadcast Technician Camera Operator Computer Animator Director of Photography Film and TV Crew Film Editor Graphic Designer Photographer Website Designer

PRINT TECHNOLOGY

PRINT TECHNOLOGY CAREER PATHWAYS
2015-2016

PRE-PRESS
CIP 10.0303.00

PATHWAY DESCRIPTION: A program that prepares individuals to apply technical knowledge and skills to the layout, design and typographic arrangement of printed and/or electronic graphic and textual products. Includes instruction in printing and lithographic equipment and operations, computer hardware and software, digital imaging, print preparation, page layout and design, desktop publishing, and applicable principles of graphic design.

BEST PRACTICE CORE	EXAMPLE ILP-RELATED CAREER TITLES

Foundational Skills Necessary for Career-Ready Measure: (KOSSA/Industry Certification)
 	
   Choose (2) TWO CREDITS from the following:
 	
   • 480328 Computer Fundamentals
   • 480325 Graphic Communication
 	
   Choose (2) TWO CREDITS from the Following:
 	
   • 480323 Computer Layout and Design
   • 480324 Typography
   • 480329 Digital Production
   • 480301 COOP <u>OR</u>
     480304 Internship
	Graphic Designers
	
	Prepress Technicians
	
	Book Cover Designers

PRINT TECHNOLOGY CAREER PATHWAYS
2015-2016

PRINTING AND FINISHING
CIP 10.0305.00

PATHWAY DESCRIPTION: A program that generally prepares individuals to apply technical knowledge and skills to plan, prepare, and execute a variety of commercial and industrial graphic communications jobs. Includes instruction in the operation and maintenance of mechanical, electronic, and digital graphic, printing, and finishing equipment; and related processes.

BEST PRACTICE CORE	EXAMPLE ILP-RELATED CAREER TITLES
Foundational Skills Necessary for Career-Ready Measure: (KOSSA/Industry Certification) *Choose (2) TWO CREDITS from the following:* • 480328 Computer Fundamentals • 480325 Graphic Communication *Choose (2) TWO CREDITS from the following:* • 480321 Press 1 • 480330 Finishing and Binding • 480301 COOP OR 480304 Internship	Cylinder Press Set-Up Operator Flat-Bed Press Set-Up Operator Job Printer Lithographic Printer Newspaper Press Operator Offset Printer

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TRANSPORTATION

TRANSPORTATION EDUCATION CAREER PATHWAYS 2015-2016

AUTOMOTIVE MAINTENANCE AND LIGHT REPAIR TECHNICIAN
CIP 47.0604.01

PATHWAY DESCRIPTION: A program that prepares individuals to apply technical knowledge and skills to repair, service, and maintain all types of automobiles. Includes instruction in brake systems, electrical systems, engine performance, engine repair, suspension and steering, automatic and manual transmissions and drive trains, and heating and air condition systems.

BEST PRACTICE CORE	EXAMPLE ILP-RELATED CAREER TITLES
Foundational Skills Necessary for Career-Ready Measure: *(KOSSA/Industry Certification)* *Complete **(4) FOUR CREDITS** from the following:* 470507 Automotive Maintenance and Light Repair Section A and Lab 470509 Automotive Maintenance and Light Repair Section B and Lab 470511 Automotive Maintenance and Light Repair Section C and Lab 470513 Automotive Maintenance and Light Repair Section D and Lab These courses can be taken in ANY order. There are NO prerequisites required to enter these classes. Example: "Section "D" can be taken before Section "A". "Section "C" can be taken before Section "B".	Entry Level Auto Technician Service Advisor Dispatcher Warranty Clerk Auto Sales Rep Service Manager

TRANSPORTATION EDUCATION CAREER PATHWAYS
2015-2016

AUTOMOBILE SERVICE TECHNICIAN
CIP Code: 47.0604.02

PATHWAY DESCRIPTION: A program that prepares individuals to apply technical knowledge and skills to repair, service, and maintain all types of automobiles. Includes instruction in brake systems, electrical systems, engine performance, engine repair, suspension and steering, automatic and manual transmissions and drive trains, and heating and air condition systems.

BEST PRACTICE CORE	EXAMPLE ILP-RELATED CAREER TITLES
Foundational Skills Necessary for Career-Ready Measure: *(KOSSA/Industry Certification)* *Complete (4) FOUR CREDITS from the Automobile Maintenance and Light Repair Technician Pathway* *Complete (4) FOUR CREDITS from the following:* • 470515 Automobile Service Technology Section A and Lab • 470517 Automobile Service Technology Section B and Lab • 470519 Automobile Service Technology Section C and Lab • 470521 Automobile Service Technology Section D and Lab These courses can be taken in ANY order. Example: "Section "D" can be taken before Section "A. "Section "C" can be taken before Section "B"	Auto Technician/Line Technician Service Advisor Dispatcher Warranty Clerk Auto Sales Rep Shop Foreman Service Manager

TRANSPORTATION EDUCATION CAREER PATHWAYS 2015-2016

MASTER AUTOMOBILE SERVICE TECHNICIAN
CIP Code: 47.0604.03

PATHWAY DESCRIPTION: A program that prepares individuals to apply technical knowledge and skills to repair, service, and maintain all types of automobiles. Includes instruction in brake systems, electrical systems, engine performance, engine repair, suspension and steering, automatic and manual transmissions and drive trains, and heating and air condition systems.

BEST PRACTICE CORE	EXAMPLE ILP-RELATED CAREER TITLES

Foundational Skills Necessary for Career-Ready Measure: *(KOSSA/Industry Certification)*
 	
    Complete (8) EIGHT CREDITS in the Automobile Maintenance and Light Repair Technician Pathway AND the Automobile Service Technology Pathway.
 	
    Complete (2) TWO CREDITS from the following:
 	
• 470523 Master Automobile Service Technology Section A and Lab
• 470525 Master Automobile Service Technology Section B and Lab
 	
These Master Automobile Service Technology courses can be taken in ANY order.
 	
Example:
"Section "B" can be taken before Section "A".
	Auto Technician/Line
	
	Technician/Specialty Technician
	
	Service Advisor
	
	Dispatcher
	
	Warranty Clerk
	
	Auto Sales Rep
	
	Shop Foreman
	
	Auto Field Engineer
	
	Auto Instructor
	
	Service Manager

TRANSPORTATION EDUCATION CAREER PATHWAYS 2015-2016

ENTRY LEVEL BRAKES AND SUSPENSION TECHNICIAN
(Option only available for Programs Still Certified under the 2008 ASE/NATEF Standards.)
CIP Code: 47.0604.04

PATHWAY DESCRIPTION: A program that prepares individuals to apply technical knowledge and skills to repair, service, and maintain all types of automobiles. Includes instruction in brake systems, electrical systems, and suspension and steering systems

BEST PRACTICE CORE	ILP-RELATED CAREER TITLES
Foundational Skills Necessary for Career-Ready Measure: *(KOSSA/Industry Certification)* *Complete (3) THREE CREDITS from the following:* • 470550 Brakes and Lab • 470553 Suspension and Steering and Lab • 470556 Basic Automotive Electricity and Lab Note: The above courses in this Pathway may be taken in any order (Basic Automotive Electricity and Lab is a prerequisite to Electrical Systems and Lab) *Complete (1) ONE CREDIT from the following:* • 470562 Electrical Systems and Lab	Brake Technician Front End Technician Brake and Suspension Technician Auto Electric Technician Service Advisor Dispatcher Warranty Clerk Auto Sales Rep Shop Foreman Service Manager

TRANSPORTATION EDUCATION CAREER PATHWAYS 2015-2016

ENTRY LEVEL ENGINE PERFORMANCE TECHNICIAN
(Option only available for Programs Still Certified under the 2008 ASE/NATEF Standards)
CIP Code: 47.0604.05

PATHWAY DESCRIPTION: A program that prepares individuals to apply technical knowledge and skills to repair, service, and maintain all types of automobiles. Includes instruction in electrical systems, engine performance, and engine repair systems

BEST PRACTICE CORE	EXAMPLE ILP-RELATED CAREER TITLES
Foundational Skills Necessary for Career-Ready Measure: (KOSSA/Industry Certification) *Complete (1) ONE CREDIT from the following as prerequisite for pathway:* • 470556 Basic Automotive Electricity and Lab *Complete (4) FOUR CREDITS from the following:* • 470562 Electrical Systems and Lab • 470558 Basic Fuel and Ignition Systems and Lab • 470564 Emission Systems Lab • 470560 Computer Control Systems and Lab Note: The Courses in this Pathway may be taken in any order.	Drivability Technician Auto Electric Technician Auto Engine Repair Technician Service Advisor Dispatcher Warranty Clerk Auto Sales Rep Shop Foreman Service Manager

TRANSPORTATION EDUCATION CAREER PATHWAYS 2015-2016

AUTOMOTIVE ENGINEERING/AUTOMOTIVE MAINTENANCE AND LIGHT REPAIR
CIP Code: 15.0803.00

PATHWAY DESCRIPTION: A program that prepares individuals to apply basic engineering principles and technical skills in support of engineers and other professionals engaged in developing, manufacturing and testing self-propelled ground vehicles and their systems. Includes instruction in vehicular systems technology, design and development testing, prototype and operational testing, inspection and maintenance procedures, instrument calibration, test equipment operation and maintenance, and report preparation.

BEST PRACTICE CORE	EXAMPLE ILP-RELATED CAREER TITLES
Foundational Skills Necessary for Career-Ready Measure: *(KOSSA/Industry Certification)* *Complete (2) TWO CREDITS from the following as prerequisite to the pathway:* • 219901 Introduction to Engineering Design *(PLTW)* • 219903 Digital Electronics (PLTW) *Complete (4) FOUR CREDITS from the following:* • 470507 Automotive Maintenance and Light Repair Section A and Lab • 470509 Automotive Maintenance and Light Repair Section B and Lab • 470511 Automotive Maintenance and Light Repair Section C and Lab • 470513 Automotive Maintenance and Light Repair Section D and Lab Note: (PLTW) courses require an agreement between Project Lead the Way and the Local School District.	Automotive Engineer Service Advisor Dispatcher Warranty Clerk Auto Sales Rep Service Manager

COMPLEMENTARY OR ADVANCED COURSEWORK BEYOND AUTOMOTIVE TECHNOLOGY PATHWAY(s)
Upon completion of a pathway, additional coursework to enhance student learning is encouraged. Credits earned in Advanced or Complementary Coursework "Beyond the Pathway" may not be substituted for pathway courses in order to achieve Preparatory or Completer status.
470580 Engine Repair and Lab
470547 Climate Control and Lab
470570 Automatic Transmission/Transaxle and Lab
470582 Manual Drivetrains and Axles and Lab
470501 Co-Op I
499930 Industrial Safety
060170 Personal Financial Management
470504 Automotive Internship I
470546 Precision Measurement
470301 Shop Management*
470577 Special Problems I (Auto)
470578 Special Problems II (Auto)
470579 Special Problems III (Auto)
470584 Special Problems IV (Auto)
060191 Workplace Principles

Note: (*) Indicates half-credit (.5) course

TRANSPORTATION EDUCATION CAREER PATHWAYS
2015-2016

ENTRY LEVEL COLLISION REPAIR PAINTER
CIP Code: 47.0603.01

PATHWAY DESCRIPTION: A program that prepares individuals to apply technical knowledge and skills to repair, reconstruct and finish automobile bodies, fenders, and external features. Includes instruction in damage repair, painting and refinishing techniques, and damage analysis and estimating.

BEST PRACTICE CORE	EXAMPLE ILP-RELATED CAREER TITLES
Foundational Skills Necessary for Career-Ready Measure: *(KOSSA/Industry Certification)* *Complete **(3.5) THREE & ONE- HALF CREDITS** from the following:* • 470639 Painting and Refinishing I and Lab • 470640 Painting and Refinishing II and Lab • 470645 Painting and Refinishing III and Lab • 470628 Damage Analysis, Estimating and Customer Service* *Complete **(.5) ONE- HALF CREDITS** from the following:* • 470647 Painting and Refinishing Special Problems* <u>OR</u> 470631 Intro to Collision Repair* Note: (*) Indicates half-credit course	Collision Repair/Painter Technician Service Advisor Dispatcher Warranty Clerk Service Manager Auto Sales Rep Adjuster

TRANSPORTATION EDUCATION CAREER PATHWAYS 2015-2016

ENTRY LEVEL STRUCTURAL ANALYSIS AND DAMAGE REPAIR TECHNICIAN
CIP Code: 47.0603.02

PATHWAY DESCRIPTION: A program that prepares individuals to apply technical knowledge and skills to repair, reconstruct and finish automobile bodies, fenders, and external features. Includes instruction in structure analysis, damage repair, non-structural analysis, plastics and adhesives, and damage analysis and estimating.

BEST PRACTICE CORE	ILP-RELATED CAREER TITLES

Foundational Skills Necessary for Career-Ready Measure: *(KOSSA/Industry Certification)*
 	
    Complete (4) FOUR CREDITS from the Nonstructural Damage and Repair Technician Pathway.
 	
    Complete (4) FOUR CREDITS from the following:
 	
• 470620 Structural Analysis and Damage Repair I and Lab
• 470622 Structural Analysis and Damage Repair II and Lab
• 470628 Damage Analysis, Estimating and Customer Service* <u>AND</u>
        470677 Special Projects I Collision Repair* <u>OR</u>
        470631 Intro to Collision Repair*
• 470678 Special Projects II Collision Repair
 	
    Note: (*) Indicates half-credit course
	Collision Repair/Structural Repair Technician
	
	Service Advisor
	
	Dispatcher
	
	Warranty Clerk
	
	Service Manager
	
	Auto Sales Rep
	
	Adjuster

TRANSPORTATION EDUCATION CAREER PATHWAYS
2015-2016

ENTRY LEVEL NON-STRUCTURAL DAMAGE AND REPAIR TECHNICIAN
CIP Code: 47.0603.03

PATHWAY DESCRIPTION: A program that prepares individuals to apply technical knowledge and skills to repair, reconstruct and finish automobile bodies, fenders, and external features. Includes instruction in damage repair, non-structural analysis, plastics and adhesives, and damage analysis and estimating.

BEST PRACTICE CORE	EXAMPLE ILP-RELATED CAREER TITLES

Foundational Skills Necessary for Career-Ready Measure: *(KOSSA/Industry Certification)*
 	
     *Complete **(4) FOUR CREDITS** from the following:*
 	
 • 470633 Non-Structural Analysis and Damage Repair I and Lab
 • 470644 Non-Structural Analysis and Damage Repair II and Lab
 • 470649 Non-Structural Analysis and Damage Repair III and Lab
 • 470628 Damage Analysis, Estimating and Customer Service
 • 470651 Non-Structural Analysis and Damage Repair Special Problems I* OR 470631 Intro to Collision Repair*
 	
     Note: (*) Indicates half-credit course
	Collision Repair/ Non- Structural Repair Technician
	
	 Service Advisor
	
	 Dispatcher
	
	 Warranty Clerk
	
	 Service Manager
	
	 Auto Sales Rep
	
	 Adjuster

TRANSPORTATION EDUCATION CAREER PATHWAYS
2015-2016

ENTRY LEVEL MECHANICAL AND ELECTRICAL REPAIR TECHNICIAN
CIP Code: 47.0603.04

PATHWAY DESCRIPTION: A program that prepares individuals to apply technical knowledge and skills to repair, reconstruct and finish automobile bodies, fenders, and external features. Includes instruction in damage repair, mechanical and electrical components, and damage analysis and estimating.

BEST PRACTICE CORE	EXAMPLE ILP-RELATED CAREER TITLES

Foundational Skills Necessary for Career-Ready Measure: *(KOSSA/Industry Certification)*
 	
    Complete (4) FOUR CREDITS from the following:
 	
• 470631 Intro to Collision Repair*
• 470628 Damage Analysis, Estimating and Customer Service*
• 470642 Mechanical and Electrical Components I and Lab
• 470653 Mechanical and Electrical Components II and Lab
• 470678 Special Projects Collision Repair II
 	
  Note: (*) Indicates half-credit course
	Collision Repair/Mechanical And Electrical Technician
	
	Service Advisor
	
	Dispatcher
	
	Warranty Clerk
	
	Service Manager
	
	Auto Sales Rep
	
	Adjuster

COMPLEMENTARY OR ADVANCED COURSEWORK BEYOND COLLISION REPAIR TECHNOLOGY PATHWAY(s)
Upon completion of a pathway, additional coursework to enhance student learning is encouraged. Credits earned in Advanced or Complementary Coursework "Beyond the Pathway" may not be substituted for pathway courses in order to achieve Preparatory or Completer status.
470652 Non-Structural Damage and Repair Special Problems Lab
470601 Co-Op I Collision Repair
499930 Industrial Safety
060170 Personal Financial Management
470604 Collision Repair Internship I
470679 Special Projects III Collision Repair
060191 Workplace Principles

TRANSPORTATION EDUCATION CAREER PATHWAYS
2015-2016

DIESEL BRAKE REPAIRER/BASIC AUTOMOTIVE ELECTRICITY OPTION
CIP Code: 47.0605.01

PATHWAY DESCRIPTION: A program that prepares individuals to apply technical knowledge and skills to repair, service, and maintain diesel engines in vehicles such as automobiles, buses, ships, trucks, railroad locomotives, and construction equipment; as well as stationary diesel engines in electrical generators and related equipment.

BEST PRACTICE CORE	EXAMPLE ILP-RELATED CAREER TITLES
Foundational Skills Necessary for Career-Ready Measure: (KOSSA/Industry Certification) *Complete (4) FOUR CREDITS from the following:* • 470422 Brakes (Diesel) and Lab • 470556 Basic Automotive Electricity and Lab • 470425 Electrical Systems for Diesel Equipment and Lab • 470406 Mechanical Concepts* <u>AND</u> 470403 Preventive Maintenance and Lab* Note: (*) Indicates half-credit course	Entry Level Diesel Brake Technician Service Advisor Dispatcher Warranty Clerk Diesel Sales Rep Service Manager

TRANSPORTATION EDUCATION CAREER PATHWAYS
2015-2016

DIESEL ENGINE/ELECTRICIAN TECHNICIAN
BASIC AUTOMOTIVE ELECTRICITY OPTION
CIP Code: 47.0605.02

PATHWAY DESCRIPTION: A program that prepares individuals to apply technical knowledge and skills to repair, service, and maintain diesel engines in vehicles such as automobiles, buses, ships, trucks, railroad locomotives, and construction equipment; as well as stationary diesel engines in electrical generators and related equipment.

BEST PRACTICE CORE	EXAMPLE ILP-RELATED CAREER TITLES

Foundational Skills Necessary for Career-Ready Measure: *(KOSSA/Industry Certification)*
 	
 Complete (2) TWO CREDITS from the following as prerequisite to the pathway:
 	
 • 470406 Mechanical Concepts* <u>AND</u>
   470403 Preventive Maintenance and Lab*
 • 470556 Basic Automotive Electricity and Lab
 	
 Complete (3) THREE CREDITS from the following:
 	
 • 470425 Electrical Systems for Diesel Equipment and Lab
 • 470421 Intro to Diesel Engines and Lab
 • 470423 Diesel Engine Repair and Lab
 	
   Note: (*) Indicates half-credit course
	Entry Level Diesel Engine Technician
	
	 Service Advisor
	
	 Dispatcher
	
	 Warranty Clerk
	
	 Diesel Sales Rep
	
	 Service Manager

TRANSPORTATION EDUCATION CAREER PATHWAYS 2015-2016

DIESEL FRONT END MECHANIC
BASIC AUTOMOTIVE ELECTRICITY OPTION.
CIP Code: 47.0605.03

PATHWAY DESCRIPTION: A program that prepares individuals to apply technical knowledge and skills to repair, service, and maintain diesel engines in vehicles such as automobiles, buses, ships, trucks, railroad locomotives, and construction equipment; as well as stationary diesel engines in electrical generators and related equipment.

BEST PRACTICE CORE	EXAMPLE ILP-RELATED CAREER TITLES
Foundational Skills Necessary for Career-Ready Measure: (KOSSA/Industry Certification) *Complete (4) FOUR CREDITS from the following:* • 470556 Basic Automotive Electricity and Lab • 470425 Electrical Systems for Diesel Equipment • 470424 Steering and Suspension (Diesel) • 470406 Mechanical Concepts* • 470403 Preventive Maintenance and Lab* Note: (*) Indicates half-credit course	Entry Level Front End Diesel Technician Service Advisor Dispatcher Warranty Clerk Diesel Sales Rep Service Manager

TRANSPORTATION EDUCATION CAREER PATHWAYS 2015-2016

DIESEL BRAKE REPAIRER
SPECIAL PROBLEMS OPTION
CIP Code: 47.0605.04

PATHWAY DESCRIPTION: A program that prepares individuals to apply technical knowledge and skills to repair, service, and maintain diesel engines in vehicles such as automobiles, buses, ships, trucks, railroad locomotives, and construction equipment; as well as stationary diesel engines in electrical generators and related equipment.

BEST PRACTICE CORE	EXAMPLE ILP-RELATED CAREER TITLES
Foundational Skills Necessary for Career-Ready Measure: (KOSSA/Industry Certification) *Complete **(4) FOUR CREDITS** from the following:* • 470422 Brakes (Diesel) and Lab • 470477 Special Problems 1 (Diesel) • 470425 Electrical Systems for Diesel Equipment and Lab • 470406 Mechanical Concepts* • 470403 Preventive Maintenance and Lab* Note: (*) Indicates half-credit course	Entry Level Diesel Brakes Technician Service Advisor Dispatcher Warranty Clerk Diesel Sales Rep Service Manager

TRANSPORTATION EDUCATION CAREER PATHWAYS 2015-2016

DIESEL ENGINE/ELECTRICIAN TECHNICIAN
PREVENTIVE MAINTENANCE OPTION
CIP Code: 47.0605.05

PATHWAY DESCRIPTION: A program that prepares individuals to apply technical knowledge and skills to repair, service, and maintain diesel engines in vehicles such as automobiles, buses, ships, trucks, railroad locomotives, and construction equipment; as well as stationary diesel engines in electrical generators and related equipment.

BEST PRACTICE CORE	EXAMPLE ILP-RELATED CAREER TITLES
Foundational Skills Necessary for Career-Ready Measure: (KOSSA/Industry Certification) *Complete (4) FOUR CREDITS from the following:* • 470425 Electrical Systems for Diesel Equipment and Lab • 470421 Intro to Diesel Engines and Lab • 470423 Diesel Engine Repair and Lab • 470406 Mechanical Concepts* • 470403 Preventive Maintenance and Lab* Note: (*) Indicates half-credit course	Entry Level Diesel Engine/Electrical Technician Service Advisor Dispatcher Warranty Clerk Diesel Sales Rep Service Manager

TRANSPORTATION EDUCATION CAREER PATHWAYS
2015-2016

DIESEL FRONT END MECHANIC
SPECIAL PROBLEMS OPTION
CIP Code: 47.0605.06

PATHWAY DESCRIPTION: A program that prepares individuals to apply technical knowledge and skills to repair, service, and maintain diesel engines in vehicles such as automobiles, buses, ships, trucks, railroad locomotives, and construction equipment; as well as stationary diesel engines in electrical generators and related equipment.

BEST PRACTICE CORE	EXAMPLE ILP-RELATED CAREER TITLES
Foundational Skills Necessary for Career-Ready Measure: (KOSSA/Industry Certification) *Complete (4) FOUR CREDITS from the following:* • 470477 Special Problems 1 (Diesel) • 470425 Electrical Systems for Diesel Equipment and Lab • 470424 Steering and Suspension (Diesel) and Lab • 470406 Mechanical Concepts* • 470403 Preventive Maintenance and Lab* Note: (*) Indicates half-credit course	Entry Level Diesel Front End/Electrical Technician Service Advisor Dispatcher Warranty Clerk Diesel Sales Rep Service Manager

COMPLEMENTARY OR ADVANCED COURSEWORK BEYOND DIESEL TECHNOLOGY PATHWAY(s)
Upon completion of a pathway, additional coursework to enhance student learning is encouraged. Credits earned in Advanced or Complementary Coursework "Beyond the Pathway" may not be substituted for pathway courses in order to achieve Preparatory or Completer status.
470438 Climate Control (Diesel) and Lab
470426 Hydraulics (Diesel) and Lab
470427 Powertrain (Diesel) and Lab
470442 Co-Op (Diesel)
499930 Industrial Safety
060170 Personal Financial Management
470445 Internship I (Diesel)
470546 Precision Measurement
470478 Special Problems II (Diesel)
470479 Special Problems III (Diesel)
060191 Workplace Principles
Career Options
JAG Courses

TRANSPORTATION EDUCATION CAREER PATHWAYS
2015-2016

OUTDOOR POWER EQUIPMENT AND SMALL ENGINE MECHANIC
CIP Code 47.0606.01

PATHWAY DESCRIPTION: A program that prepares individuals to apply technical knowledge and skills to repair, service, and maintain small internal-combustion engines used on portable power equipment such as lawnmowers, chain saws, rotary tillers, and snowmobiles.

BEST PRACTICE CORE	**EXAMPLE ILP-RELATED CAREER TITLES**
Foundational Skills Necessary for Career-Ready Measure: *(KOSSA/Industry Certification)* *Complete (2) TWO CREDITS from the following as prerequisites:* • 470821 Small Engine Repair I and Lab • 470812 Small Engine Repair II and Lab *Complete (4) FOUR CREDITS from the following:* • 470822 Two Stroke Cycle Engine (Small Engine) And Lab • 470814 Four Stoke Cycle Engine (Small Engine) And Lab • 470840 Small Engine Electrical Systems And Lab • 470816 Small Engine Repair/Failure And Analysis And Lab	Entry Level Small Engine Technician Service Advisor Dispatcher Warranty Clerk Sales Rep Service Manager

TRANSPORTATION EDUCATION CAREER PATHWAYS
2015-2016

SMALL ENGINE MECHANIC
CIP Code 47.0606.02

PATHWAY DESCRIPTION: A program that prepares individuals to apply technical knowledge and skills to repair, service, and maintain small internal-combustion engines used on portable power equipment such as lawnmowers, chain saws, rotary tillers, and snowmobiles.

BEST PRACTICE CORE	EXAMPLE ILP-RELATED CAREER TITLES
Foundational Skills Necessary for Career-Ready Measure: *(KOSSA/Industry Certification)* *Complete (1) ONE CREDIT from the following as a prerequisite to pathway:* • 470821 Small Engine Repair I and Lab *Complete (4) FOUR CREDITS from the following:* • 470812 Small Engine Repair II And Lab • 470814 Four Stoke Cycle Engine (Small Engine) And Lab • 470822 Two Stroke Cycle Engine (Small Engine) And Lab • 470840 Small Engine Electrical Systems And Lab	Entry Level Small Engine Technician Service Advisor Dispatcher Warranty Clerk Sales Rep Service Manager

COMPLEMENTARY OR ADVANCED COURSEWORK BEYOND SMALL ENGINE REPAIR PATHWAY(s)
Upon completion of a pathway, additional coursework to enhance student learning is encouraged. Credits earned in Advanced or Complementary Coursework "Beyond the Pathway" may not be substituted for pathway courses in order to achieve Preparatory or Completer status.
470816 Small Engine Repair/Failure And Analysis and Lab
470801 Co-Op I (Small Engine Repair)
470805 Small Engine Internship

TRANSPORTATION EDUCATION CAREER PATHWAYS 2015-2016

MOTORCYCLE MAINTENANCE AND REPAIR TECHNICIAN
CIP 47.0611.00

PATHWAY DESCRIPTION: A program that prepares individuals to apply technical knowledge and skills to repair, service, and maintain motorcycles and other similar powered vehicles. Includes instruction in lubrication and cooling systems, electrical and ignition systems, carburetion, fuel systems and adjustments of moving parts.

BEST PRACTICE CORE	ILP-RELATED CAREER TITLES
Foundational Skills Necessary for Career-Ready Measure: (KOSSA/Industry Certification) *Complete* **(1) ONE CREDITS** *from the following:* • 470840 Small Engine Electrical Systems and Lab *Choose* **(3) THREE CREDITS** *from the following:* • 470848 Advanced Engines /Drive Systems & Lab (Motorcycle/Powersports) • 470845 Basic Engines / Drive Systems & Lab (Motorcycle/Powersports) • 470847 Diagnostic and Troubleshooting & Lab (Motorcycle/Powersports) • 470846 Frames and Suspensions & Lab (Motorcycle/Powersports)	Entry Level Powersports/Motorcycle Technician Service Advisor Dispatcher Warranty Clerk Sales Rep Service Manager

COMPLEMENTARY OR ADVANCED COURSEWORK BEYOND POWERSPORTS/MOTOCYCLE PATHWAY(s)
Upon completion of a pathway, additional coursework to enhance student learning is encouraged. Credits earned in Advanced or Complementary Coursework "Beyond the Pathway" may not be substituted for pathway courses in order to achieve Preparatory or Completer status.
470849 Performance Machining/Welding and Lab
470844 Introduction to Motorcycles
470852 Co-Op Powersports/Motorcycle Technology
470853 Internship Powersports Motorcycle Technology

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VISUAL AND PERFORMING ARTS EDUCATION

VISUAL & PERFORMING ARTS CAREER PATHWAYS
2015-2016

THEATRE TECHNICAL
CIP Code 36.0117.00

PATHWAY DESCRIPTION: Technical theatre courses are designed to develop knowledge of theatrical concepts and techniques that will enable students to experience and develop skills in one or more aspects of theatrical production with a concentration in stagecraft (lighting, sound, costumes, set construction, makeup, stage management, etc.) Technical theatre covers multiple styles of dramatic literature and uses a variety of connections to historical and cultural contexts. The program that generally prepares individuals to perform the various roles of technical theatre

BEST PRACTICE CORE	EXAMPLE ILP-RELATED CAREER TITLES
Foundational Skills Necessary for Career-Ready Measure: (Capstone Portfolio) *Complete (1) ONE CREDIT from the following:* • 500511 Introduction to Theatre *Choose (2) TWO CREDITS from the following:* • 500560 Theatre Pathway, Technical II • 500561 Theatre Pathway, Technical III • 500562 Theatre Pathway, Technical IV	Arts-Theatre Administrator Casting Director Costume Designer Director Exhibit Designer Film and TV Crew Lighting Technician Makeup Artist Model Maker Set Designer Sign Maker Special Effects Technician

COMPLEMENTARY OR ADVANCED COURSEWORK BEYOND THEATRE TECHNCIAL PATHWAY(s)
Upon completion of a pathway, additional coursework to enhance student learning is encouraged. Credits earned in Advanced or Complementary Coursework "Beyond the Pathway" may not be substituted for pathway courses in order to achieve Preparatory or Completer status.
500517 History and Literature of Theatre
500518 Theatre- Independent Study
500520 Theatre- IB Theatre Arts
500530 Theatre- Workplace Experience/Internship

THEATRE PERFORMANCE
CIP Code 50.0506.00

PATHWAY DESCRIPTION: Theatre performance courses are designed to develop a knowledge of theatrical concepts and techniques that will enable students to create new theatre pieces (work-in-progress/complete), perform existing theatre works and respond to both studio exercises and performances. Theatre covers multiple styles of dramatic literature and uses a variety of connections to historical and cultural contexts to set the stage for students to engage in sequential levels of skills and knowledge in acting and improvisation, theatre history and appreciation, dramatic literature and critique, and theatre administration. The program that generally prepares individuals to perform as an actor.

BEST PRACTICE CORE	EXAMPLE ILP-RELATED CAREER TITLES
Foundational Skills Necessary for Career-Ready Measure: (Capstone Portfolio) *Complete (1) ONE CREDIT from the following:* • 500511 Introduction to Theatre *Choose (2) TWO CREDITS from the following:* • 500550 Theatre Pathway, Performance II • 500551 Theatre Pathway, Performance III • 500552 Theatre Pathway, Performance IV	Acting Instructor Actor Arts-Theatre Administrator Arts-Theatre Therapy Casting Director Circus Performer Comedian Director Magician Radio/Television Program Director Stunt person Television and Radio Reporter

COMPLEMENTARY OR ADVANCED COURSEWORK BEYOND THEATRE PERFORMANCE PATHWAY(s)
Upon completion of a pathway, additional coursework to enhance student learning is encouraged. Credits earned in Advanced or Complementary Coursework "Beyond the Pathway" may not be substituted for pathway courses in order to achieve Preparatory or Completer status.
500516 Theatre- Playwriting
500517 Theatre- History and Literature of Theatre
500518 Theatre- Independent Study
500520 Theatre- IB Theatre Arts
500530 Theatre- Workplace Experience/Internship

VISUAL & PERFORMING ARTS CAREER PATHWAYS
2015-2016

MUSIC VOCAL ENSEMBLE
CIP Code 50.0908.00

PATHWAY DESCRIPTION: Vocal Ensemble courses are designed to develop knowledge and tone for all vocalists. Vocal Ensemble covers multiple styles of music literature and connections to historical and cultural contexts. Students will learn about and work within the processes of music (create, perform, respond, connect), study of the structures, purposes, careers and Music History.   The program that generally prepares individuals to perform as a solo and/or ensemble singer.

BEST PRACTICE CORE	**EXAMPLE ILP-RELATED CAREER TITLES**
Foundational Skills Necessary for Career-Ready Measure: (Capstone Portfolio) *Complete (3) THREE CREDITS from the following:* • 500960 Music- Vocal Pathway I • 500961 Music- Vocal Pathway II • 500962 Music- Vocal Pathway III • 500963 Music- Vocal Pathway IV	Arts- Music Administrator Arts-Music Therapist Composer Music Teacher / Instructor Musical Instrument Builder and Repairer Musician Singer

COMPLEMENTARY OR ADVANCED COURSEWORK BEYOND MUSIC VOCAL ENSEMBLE PATHWAY(s)
Upon completion of a pathway, additional coursework to enhance student learning is encouraged. Credits earned in Advanced or Complementary Coursework "Beyond the Pathway" may not be substituted for pathway courses in order to achieve Preparatory or Completer status.
500912 Music- Music History/Appreciation
500920 Music- Contemporary /Jazz Instrumental Ensemble
500921 Music- Instrumental Ensemble
500922 Music- Piano/Keyboard
500923 Music- Guitar
500927 Music- Individual Technique, Vocal Music
500928 Music Theory
500929 AP Music Theory
500930 IB Music
500931 Music- Composition/Songwriting
500935 Music- Music Independent Study
500940 Music Workplace Experience/Internship

MUSIC INSTRUMENTAL ENSEMBLE
CIP Code 50.0903.00

PATHWAY DESCRIPTION: Instrumental Ensemble courses are designed to develop knowledge and technique for playing brass, woodwind, percussion, and string instruments. Instrumental Ensemble covers multiple styles of music literature and connections to historical and cultural contexts. Students will develop their own creative styles. Students will learn about and work within the processes of music (create, perform, respond, connect), study of the structures, purposes, careers and Music History. The program that generally prepares individuals to master musical instruments and performing art as solo and/or ensemble performers. Includes instruction on one or more specific instruments from various instrumental groupings.

BEST PRACTICE CORE	**EXAMPLE ILP-RELATED CAREER TITLES**
Foundational Skills Necessary for Career-Ready Measure: (Capstone Portfolio) *Complete (3) THREE CREDITS from the following:* • 500950 Music- Instrumental Pathway I • 500951 Music- Instrumental Pathway II • 500952 Music- Instrumental Pathway III • 500953 Music- Instrumental Pathway IV	Composer Music Arts Administrator Music Teacher / Instructor Music Therapist Musical Instrument Builder and Repairer Musician Singer

COMPLEMENTARY OR ADVANCED COURSEWORK BEYOND MUSIC INSTRUMENTAL ENSEMBEL PATHWAY(s)
Upon completion of a pathway, additional coursework to enhance student learning is encouraged. Credits earned in Advanced or Complementary Coursework "Beyond the Pathway" may not be substituted for pathway courses in order to achieve Preparatory or Completer status.
500912 Music- Music History/Appreciation
500920 Music- Contemporary/Jazz Instrumental Ensemble
500922 Music- Piano/Keyboard
500923 Music- Guitar
500924 Music- Individual Technique, Instrumental Music
500928 Music Theory
500929 AP Music Theory
500931 Music- Composition/Songwriting
500935 Music- Music Independent Study
500940 Music Workplace Experience/Internship

VISUAL & PERFORMING ARTS CAREER PATHWAYS
2015-2016

DANCE TECHNIQUE
CIP Code 50.0301.00

PATHWAY DESCRIPTION: Dance Technique courses provide experience in one or more dance forms (e.g., modern, ballet, jazz, tap, cultural and ethnic forms). Initial classes are introductory in nature but include creative movement, choreography, and dance appreciation. Students will develop their own creative styles. Students will learn about and work within the processes of dance (create, perform, respond, connect), study of the structures, purposes, careers and humanities (Dance History). The program that generally prepares individuals to perform as a solo and/or ensemble dancer.

BEST PRACTICE CORE	EXAMPLE ILP-RELATED CAREER TITLES
Foundational Skills Necessary for Career-Ready Measure: (Capstone Portfolio) *Complete (3) THREE CREDITS from the following:* • 500350 Dance Pathway- Technique I • 500351 Dance Pathway- Technique II • 500352 Dance Pathway- Technique III • 500353 Dance Pathway- Technique IV	Arts/Dance Therapist Arts-Dance Administrator Choreographer/Dance Instructor Circus Performer Dancer

COMPLEMENTARY OR ADVANCED COURSEWORK BEYOND DANCE PATHWAY(s)
Upon completion of a pathway, additional coursework to enhance student learning is encouraged. Credits earned in Advanced or Complementary Coursework "Beyond the Pathway" may not be substituted for pathway courses in order to achieve Preparatory or Completer status.
500310 Dance- Choreography
500312 Dance- Dance Repertory
500314 Dance History and Appreciation
500315 Dance Independent Study
500317 Dance Workplace Experience/Internship

VISUAL & PERFORMING ARTS CAREER PATHWAYS
2015-2016

VISUAL ART
CIP Code 50.0702.00

PATHWAY DESCRIPTION: Visual art courses provide students with knowledge and opportunities to experience a variety of art forms and to create individual works of art. Students will learn about the elements and principles, language, materials, and processes used to produce various kinds of visual arts. Students begin to develop their own creative styles. Students will learn about and work within the processes of art (create, produce/present, respond, connect), study of the structures, purposes, careers and Art History. The program generally prepares individuals to create original works as a visual artist.

BEST PRACTICE CORE	EXAMPLE ILP-RELATED CAREER TITLES
Foundational Skills Necessary for Career-Ready Measure: (Capstone Portfolio) *Complete (3) THREE CREDITS from the following:* • 500750 Visual Art- Pathway I • 500751 Visual Art- Pathway II • 500752 Visual Art- Pathway III • 500753 Visual Art- Pathway IV	Art Therapist Art Dealer Art Director Artist Arts Administrator Cartoonist/Comic Illustrator Computer Animator Craftsperson Curator Exhibit Designer Graphic Designer Model Maker Painter Photographic Processor Photojournalist Potter Sign Maker Tattoo Artist Visual Merchandiser Website Designer

COMPLEMENTARY OR ADVANCED COURSEWORK BEYOND VISUAL ART PATHWAY(s)
Upon completion of a pathway, additional coursework to enhance student learning is encouraged. Credits earned in Advanced or Complementary Coursework "Beyond the Pathway" may not be substituted for pathway courses in order to achieve Preparatory or Completer status.
500210 Crafts- Jewelry
500212 Crafts- Ceramics/Pottery
500214 Crafts- Fibers and Textile Design
500611 Photography
500612 Cinematography/Video Production
500712 Visual Art- Drawing/Painting
500713 Visual Art- Sculpture
500714 Visual Art- Art Portfolio
500716 Visual Art- AP Studio Art-Drawing Portfolio
500717 Visual Art- IB Art/Design
500718 Visual Art-Independent Study
500720 Visual Art- Graphic Design
500721 Visual Art- AP Art History
500722 Visual Art- AP Studio Art-2-D Design Portfolio
500923 Visual Art- AP Studio Art-3-D Design Portfolio
500724 Visual Art- Advertising Design/Commercial Art
500730 Visual Art- Printmaking
500730 Visual Art Workplace Experience/Internship

INDUSTRIAL MAINTENANCE TECHNOLOGY CAREER PATHWAYS 2015-2016

TRACK INDUSTRIAL MAINTENANCE ELECTRICAL PATHWAY CIP 47.0303.99

PATHWAY DESCRIPTION: The TRACK Industrial Maintenance Electrical Pathway is designed as a pre-apprenticeship pathway for technical students to enter a USDOL Registered Electrical Apprenticeship program. Representatives from Kentucky Electrical Apprenticeship Committees chose 4 courses from the IMT valid course list. These courses will prepare the student with the required skills to enter a four year Electrical Apprenticeship. Additional courses are also listed enhancing the students skill set. Each student must pass an End of Program assessment and complete 8 OSHA Safety modules listed on The Kentucky Labor Cabinet website. Upon completion the student will receive a pre-apprenticeship industry certification and be considered for an interview for an Electrical Apprenticeship. Upon acceptance into an apprenticeship program, the sponsoring entity will determine how much credit is awarded to the student for prior learning. The OCTE Manufacturing consultant will be able to provide a list of participating ELECTRICAL apprenticeship programs.

BEST PRACTICE CORE	EXAMPLE ILP-RELATED CAREER TITLES

Foundational Skills Necessary for Career-Ready Measure: *(KOSSA/Industry Certification)*
 	
    Complete (4) FOUR REQUIRED CREDITS:
 	
 • 470322 Industrial Maintenance Electrical Principles
 • 470348 Industrial Maintenance Electrical Motor Controls
 • 470330 Industrial Maintenance of PLC
 • 470318 Maintaining Industrial Equipment
 	
    Additional coursework to ENHANCE pathway:
 	
 • 499925 Basic Troubleshooting*
 • 470365 HVAC Electricity (Ind.Maint)
 	
 See information specific to TRACK on page 157
 	
 Note: (*) Indicates half-credit (.5) course
	Engineer Technician
	
	 Maintenance Mechanic
	
	 Fluid Power Mechanic
	
	 Maintenance Machinist
	
	 Refrigeration Technician
	
	 Electrical Engineer
	
	 Industrial Engineer
	
	 Mechanical Engineer

JUNIOR RESERVES OFFICER TRAINING CORPS
JROTC

JUNIOR RESERVE OFFICERS' TRAINING CORPS
CAREER PATHWAYS
2015-2016

Air Force JROTC
CIP 28.0101.00

PATHWAY DESCRIPTION: A program that introduces students to the theory and practice of air science, life in the U.S. Air Force, and prepares them for cadet status (Junior **ROTC** or J**ROTC**) or for service as commissioned reserve or active duty officers (senior AF**ROTC** or **ROTC**). Programs are offered as adjuncts to regular high school instructional programs.

BEST PRACTICE CORE	ILP-RELATED CAREER TITLES
Foundational Skills Necessary for Career-Ready Measure: (KOSSA/Industry Certification) **Complete (3) THREE CREDITS:** • 580134 Air Force JROTC1 • 580135 Air Force JROTC2 • 580136 Air Force JROTC3 *Choose (1) ONE CREDIT from the following:* • 580137 Air Force JROTC4 <u>OR</u> • 580138 Air Force JROTC Leadership	Administrative Personnel Construction Personnel Electronic And Electrical Equipment Repair Personnel Engineering, Science, And Technical Personnel Healthcare Personnel Media And Public Affairs Personnel Transportation And Material-Handling Personnel

JUNIOR RESERVE OFFICERS' TRAINING CORPS
CAREER PATHWAYS
2015-2016

ARMY JROTC
CIP 28.0301.00

PATHWAY DESCRIPTION: A program that introduces students to the theory and practice of military science, life in the U.S. Army, and prepares them for cadet status (Junior **ROTC** or J**ROTC**) or for service as commissioned reserve or active duty officers (senior A**ROTC** or **ROTC**). Programs are offered as adjuncts to regular high school instructional programs.

BEST PRACTICE CORE	ILP-RELATED CAREER TITLES
Foundational Skills Necessary for Career-Ready Measure: (KOSSA/Industry Certification)	Administrative Personnel
	Construction Personnel
Complete (3) THREE CREDITS:	Electronic And Electrical Equipment Repair Personnel
• 580240 Army Junior ROTC Level I	Engineering, Science, And Technical Personnel
• 580241 Army Junior ROTC Level II	
• 580242 Army Junior ROTC Level III	Healthcare Personnel
Choose (1) ONE CREDIT from the Following:	Media And Public Affairs Personnel
• 580243 Army Junior ROTC Level IV <u>OR</u>	Transportation And Material-Handling Personnel
• 580244 Army Junior ROTC Leadership	

JUNIOR RESERVE OFFICERS' TRAINING CORPS
CAREER PATHWAYS
2015-2016

NAVY JROTC
CIP 28.0401.01

PATHWAY DESCRIPTION: A program that introduces students to the theory and practice of naval science, life in the U.S. Navy and prepares them for cadet status (Junior **ROTC** or J**ROTC**) or for service as commissioned reserve or active duty officers (senior N**ROTC** or **ROTC**). Programs are offered as adjuncts to regular high school instructional programs.

BEST PRACTICE CORE	ILP-RELATED CAREER TITLES
Foundational Skills Necessary for Career-Ready Measure: (KOSSA/Industry Certification) *Complete (3) THREE CREDITS:* • 580310 Navy JROTC1 • 580311 Navy JROTC2 • 580312 Navy JROTC3 *Choose (1) ONE CREDIT from the following:* • 580313 Navy JROTC4 <u>OR</u> • 580314 Navy JROTC Leadership	Administrative Personnel Construction Personnel Electronic And Electrical Equipment Repair Personnel Engineering, Science, And Technical Personnel Healthcare Personnel Media And Public Affairs Personnel Transportation And Material-Handling Personnel

JUNIOR RESERVE OFFICERS' TRAINING CORPS
CAREER PATHWAYS
2015-2016

MARINE CORPS JROTC
CIP 28.0401.02

PATHWAY DESCRIPTION: A program that introduces students to the theory and practice of naval science, life in the U.S. Marine Corps, and prepares them for cadet status (Junior **ROTC** or **JROTC**) or for service as commissioned reserve or active duty officers (senior N**ROTC** or **ROTC**). Programs are offered as adjuncts to regular high school or college instructional programs.

BEST PRACTICE CORE	ILP-RELATED CAREER TITLES
Foundational Skills Necessary for Career-Ready Measure: (KOSSA/Industry Certification)	Administrative Personnel
	Construction Personnel
Complete (3) THREE CREDITS:	Electronic And Electrical Equipment Repair Personnel
• 580320 Marine Corps JROTC1 • 580321 Marine Corps JROTC1 • 580322 Marine Corps JROTC1	Engineering, Science, And Technical Personnel
	Healthcare Personnel
Choose (1) ONE CREDIT from the following:	Media And Public Affairs Personnel
• 580323 Marine Corps JROTC1 <u>OR</u> • 580324 Marine Corps JROTC Leadership	Transportation And Material-Handling Personnel

CAREER & TECHNICAL EDUCATION (CTE)

&

PROJECT LEAD THE WAY (PLTW)

HYBRID PATHWAYS

CTE-PLTW HYBRID
CAREER PATHWAYS
2015-2016

DESIGN ENGINEERING
CIP 15.1304.00

PATHWAY DESCRIPTION: This pathway provides the opportunity to blend Career & Technical Education (CTE) courses with Project Lead the Way (PLTW) courses to help students apply technical skills along with science, technology, engineering, and math (STEM) skills to solve real-world problems. Design Engineers have a working knowledge of mechanical parts as well as computer-aided design (CAD) software, such as AutoCAD. Mechanical designers begin a project by meeting with project managers, engineers, and clients to understand the needs and requirements for a new product or mechanical system. For example, designers working on a project to create an automobile engine may consult engineers regarding which structural materials to use or clients regarding engine efficiency requirements. Once materials and specifications have been determined, designers begin using CAD software to plan and develop models.

BEST PRACTICE CORE	EXAMPLE ILP-RELATED CAREER TITLES

Foundational Skills Necessary for Career-Ready Measure: *(KOSSA/Industry Certification)*
 	
 *Complete **(5) FIVE CREDITS** from the following :*
 	
 • 219901 Introduction to Engineering Design *(PLTW)*
 • 480110 Introduction to Computer Aided Drafting
 • 480136 Parametric Modeling
 • 480113 Engineering Graphics
 • 219906 Engineering Design & Development *(PLTW)* <u>OR</u>
    219902 Principles of Engineering *(PLTW)*
 	
    Note: (PLTW) courses require an agreement between Project Lead The Way and the Local School District please see the link to PLTW Program Requirements for further information.
	Engineer Technician
	
	 Electrical Engineer
	
	 Industrial Engineer
	
	 Mechanical Engineer
	
	 Civil Engineer

CTE-PLTW HYBRID CARER PATHWAYS 2015-2016

COMPUTERIZED MANUFACTURING AND MACHINING (CMM) ENGINEERING
CIP 48.0510.00

PATHWAY DESCRIPTION: This pathway provides the opportunity to blend Career & Technical Education (CTE) courses with Project Lead the Way (PLTW) courses to help students apply technical skills along with science, technology, engineering, and math (STEM) skills to solve real-world problems. CMM Engineers design, develop and run programs which direct machines to cut and shape metal or plastic for such things as airplanes, automobiles and other industrial machines. CMM Engineers use blueprints and 3-dimensional computer designs to create the programs which result in precisely cut products.

BEST PRACTICE CORE	EXAMPLE ILP-RELATED CAREER TITLES
Foundational Skills Necessary for Career-Ready Measure: (KOSSA/Industry Certification) *Complete **(5) FIVE CREDITS** from the following :* • 219901 Introduction to Engineering Design ***(PLTW)*** • 470913 Fundamentals of Machine Tools-A • 470914 Fundamentals of Machine Tools-B • 470915 Manual Programming • 219904 Computer Integrated Manufacturing ***(PLTW)*** Note: (PLTW) courses require an agreement between Project Lead The Way and the Local School District please see the link to PLTW Program Requirements for further information.	Machine Operator Machinist Technician Machinist Maintenance Machinist CNC Machine Operator CNC Programmer Quality Control Manager Mechanical Engineer Engineer Technician Industrial Engineer

CTE-PLTW HYBRID
CAREER PATHWAYS
2015-2016

WELDING ENGINEERING
CIP 15.0614.00

PATHWAY DESCRIPTION: This pathway provides the opportunity to blend Career & Technical Education (CTE) courses with Project Lead the Way (PLTW) courses to help students apply technical skills along with science, technology, engineering, and math (STEM) skills to solve real-world problems. Welding Engineers design and develop metal components for products for the pipeline, automotive, boiler making, ship building, aircraft and mobile home industry. Welding Engineers must have knowledge of cutting processes and gas metal arc welding procedures for efficient development of these industrial processes.

BEST PRACTICE CORE	EXAMPLE ILP-RELATED CAREER TITLES

Foundational Skills Necessary for Career-Ready Measure: (KOSSA/Industry Certification)
 	
     *Complete **(5) FIVE CREDITS** from the following :*
 	
 • 219901 Introduction to Engineering Design **(PLTW)**
 • 480505 Blueprint Reading for Welding
 • 480501 Cutting Processes
 • 480522 Gas Metal Arc Welding
 • 219902 Principles of Engineering **(PLTW)**
 	
     Note: (PLTW) courses require an agreement between Project Lead The Way and the Local School District please see the link to PLTW Program Requirements for further information.
	Pipe Welder
	
	 Certified Welding Inspector (CWI)
	
	 Certified Welding Educator (CWE)
	
	 Welding Engineer
	
	 Structural Engineer
	
	 Mechanical Engineer

CTE-PLTW HYBRID
CAREER PATHWAYS
2015-2016

ELECTRICAL ENGINEERING
CIP 14.4101.00

PATHWAY DESCRIPTION: This pathway provides the opportunity to blend Career & Technical Education (CTE) courses with Project Lead the Way (PLTW) courses to help students apply technical skills along with science, technology, engineering, and math (STEM) skills to solve real-world problems. Electrical Engineers apply electrical theory and related knowledge to diagnose and modify developmental or operational electrical machinery and electrical control equipment and circuitry in industrial or commercial plants and laboratories. Electrical Engineers experiment with motor-control devices, switch panels, transformers, generator windings, solenoids, and other electrical equipment and components according to engineering data and knowledge of electrical principles.

BEST PRACTICE CORE	EXAMPLE ILP-RELATED CAREER TITLES

Foundational Skills Necessary for Career-Ready Measure: (KOSSA/Industry Certification)
 	
  Complete (5) FIVE CREDITS from the following :
 	
• 219901 Introduction to Engineering Design **(PLTW)**
• 470322 Industrial Maintenance Electrical Principles
• 470348 Industrial Maintenance Electrical Motor Controls
• 470330 Industrial Maintenance of PLC
• 219903 Digital Electronics **(PLTW)**
 	
      Note: (PLTW) courses require an agreement between Project Lead The Way and the Local School District please see the link to PLTW Program Requirements for further information.
	Electrical Technician
	
	Electrical Supervisor
	
	Electrical Engineer

CTE-PLTW HYBRID
CAREER PATHWAYS
2015-2016

FLUID POWER ENGINEERING
CIP 15.1103.00

PATHWAY DESCRIPTION: This pathway provides the opportunity to blend Career & Technical Education (CTE) courses with Project Lead the Way (PLTW) courses to help students apply technical skills along with science, technology, engineering, and math (STEM) skills to solve real-world problems. Fluid Power Engineers design, fabricate, and test industrial hydraulic equipment. Fluid Power Engineers apply knowledge of hydraulic, pneumatic, and electrical principles to test equipment, and analyzes and records data, such as fluid pressure, flow measure, and power loss due to friction and parts wear. Fluid Power Engineers understand hydraulic symbols, reads system schematics, understands electrical principles, and is skilled in test procedures and instrumentation.

BEST PRACTICE CORE	EXAMPLE ILP-RELATED CAREER TITLES

Foundational Skills Necessary for Career-Ready Measure: *(KOSSA/Industry Certification)*
 	
  Complete (5) FIVE CREDITS from the following :
 	
 • 219901 Introduction to Engineering Design *(PLTW)*
 • 470321 Fluid Power
 • 470316 Advanced Hydraulic Systems
 • 470326 Pneumatic Systems
 • 219902 Principles of Engineering *(PLTW)*
 	
  Note: (PLTW) courses require an agreement between Project Lead The Way and the Local School District please see the link to PLTW Program Requirements for further information.
	Industrial Hydraulic Technician
	
	 Mechanical Engineer
	
	 Industrial Engineer
	
	 Pneumatic Specialist
	
	 Fluid Power Supervisor
	
	 Hydraulic Engineer

CTE-PLTW HYBRID CAREER PATHWAYS 2015-2016

FABRICATION ENGINEERING CIP 14.1901.00

PATHWAY DESCRIPTION: This pathway provides the opportunity to blend PLTW courses and CTE courses to promote training with applied technical skills and the science, technology, engineering and math required to solve real-world problems. The Fabrication Engineer design parts to engineering specifications that are required for the development of metal parts and interior metal structures. Fabrication Engineers work with Sheet Metal Technicians in the development of complex geometrical parts. The Fabrication Engineer provides direct support to the manufacturing industry in the areas of design, fabrication, modification and development of metal assemblies, components and sub-assemblies.

BEST PRACTICE CORE	EXAMPLE ILP-RELATED CAREER TITLES
Foundational Skills Necessary for Career-Ready Measure: (KOSSA/Industry Certification) *Complete (5) FIVE CREDITS from the following :* - 219901 Introduction to Engineering Design *(PLTW)* - 480816 Metal Trade Information & Metals - 480813 Parallel Line Layout - 480817 Sheet Metal 1-A - 219902 Principles of Engineering *(PLTW)* Note: (PLTW) courses require an agreement between Project Lead The Way and the Local School District please see the link to PLTW Program Requirements for further information.	Manufacturing Engineer Sheet Metal Engineer

CTE-PLTW HYBRID
CAREER PATHWAYS
2015-2016

WOOD MANUFACTURING ENGINEERING
CIP 03.0509.00

PATHWAY DESCRIPTION: This pathway provides the opportunity to blend Career & Technical Education (CTE) courses with Project Lead the Way (PLTW) courses to help students apply technical skills along with science, technology, engineering, and math (STEM) skills to solve real-world problems. Wood Manufacturing Engineers design and create interior cabinets and wood products for homes and businesses. Wood Manufacturing Engineers consult with clients and Cabinetmakers for cutting, shaping wood, preparing surfaces and forming a completed product.

BEST PRACTICE CORE	EXAMPLE ILP-RELATED CAREER TITLES
Foundational Skills Necessary for Career-Ready Measure: *(KOSSA/Industry Certification)* **Complete (5) FIVE CREDITS** *from the following* **:** • 219901 Introduction to Engineering Design **(PLTW)** • 480740 Wood Product Manufacturing • 480731 Cabinet Making Technology • 480716 Lumber Grading and Drying • 219904 Computer Integrated Manufacturing **(PLTW)** Note: (PLTW) courses require an agreement between Project Lead The Way and the Local School District please see the link to PLTW Program Requirements for further information.	Wood Product Supervisor Wood Technologist Wood Product Engineer

CTE-PLTW HYBRID CAREER PATHWAYS 2015-2016

AUTOMOTIVE ENGINEERING
CIP 15.0803.00

PATHWAY DESCRIPTION: This pathway provides the opportunity to blend Career & Technical Education (CTE) courses with Project Lead the Way (PLTW) courses to help students apply technical skills along with science, technology, engineering, and math (STEM) skills to solve real-world problems. A program that prepares individuals to apply basic engineering principles and technical skills in support of engineers and other professionals engaged in developing, manufacturing and testing self-propelled ground vehicles and their systems. Includes instruction in vehicular systems technology, design and development testing, prototype and operational testing, inspection and maintenance procedures, instrument calibration, test equipment operation and maintenance, and report preparation.

BEST PRACTICE CORE	EXAMPLE ILP-RELATED CAREER TITLES
Foundational Skills Necessary for Career-Ready Measure: *(KOSSA/Industry Certification)* *Complete (6) SIX CREDITS from the following :* • 219901 Introduction to Engineering Design *(PLTW)* • 470507 Automotive Maintenance and Light Repair Section A and Lab • 470509 Automotive Maintenance and Light Repair Section B and Lab • 470511 Automotive Maintenance and Light Repair Section C and Lab • 470513 Automotive Maintenance and Light Repair Section D and Lab • 219903 Digital Electronics *(PLTW)* Note: (PLTW) courses require an agreement between Project Lead The Way and the Local School District please see the link to PLTW Program Requirements for further information.	Automotive Engineer Service Manager

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CONSTRUCTION ARCHITECTURAL ENGINEERING
CIP 15.0101.02

PATHWAY DESCRIPTION: This pathway provides the opportunity to blend Career & Technical Education (CTE) courses with Project Lead the Way (PLTW) courses to help students apply technical skills along with science, technology, engineering, and math (STEM) skills to solve real-world problems. A program that prepares individuals to apply basic engineering principles and technical skills in support of architects, engineers and planners engaged in designing and developing buildings, urban complexes, and related systems. Includes instruction in design testing procedures, building site analysis, model building and computer graphics, structural systems testing, analysis of prototype mechanical and interior systems, report preparation, basic construction and structural design, architectural rendering, architectural-aided drafting (CAD), layout and designs, architectural blueprint interpretation, building materials, and basic structural wiring diagramming.

BEST PRACTICE CORE	EXAMPLE ILP-RELATED CAREER TITLES
Foundational Skills Necessary for Career-Ready Measure: *(KOSSA/Industry Certification)* *Complete **(5) FIVE CREDITS** from the following :* • 219901 Introduction to Engineering Design **(PLTW)** • 460201 Introduction to Construction Technology • 460212 Floor and Wall Framing • 460213 Ceiling and Roof Framing • 219905 Civil Engineering & Architecture **(PLTW)** Note: (PLTW) courses require an agreement between Project Lead The Way and the Local School District please see the link to PLTW Program Requirements for further information.	Flooring Engineer Construction Engineer Structural Engineer

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STRUCTURAL ENGINEERING
CIP 14.0803.00

PATHWAY DESCRIPTION: This pathway provides the opportunity to blend Career & Technical Education (CTE) courses with Project Lead the Way (PLTW) courses to help students apply technical skills along with science, technology, engineering, and math (STEM) skills to solve real-world problems. A program that prepares individuals to apply basic engineering principles and technical skills in support of architects, engineers and planners engaged in designing and developing buildings, urban complexes, and related systems. Includes instruction in design testing procedures, building site analysis, model building and computer graphics, structural systems testing, analysis of prototype mechanical and interior systems, report preparation, basic construction and structural design, architectural rendering, architectural-aided drafting (CAD), layout and designs, architectural blueprint interpretation, building materials, and basic structural wiring diagramming.

BEST PRACTICE CORE	**EXAMPLE ILP-RELATED CAREER TITLES**
Foundational Skills Necessary for Career-Ready Measure: (KOSSA/Industry Certification) *Complete **(5) FIVE CREDITS** from the following :* • 219901 Introduction to Engineering Design *(PLTW)* • 460201 Introduction to Construction Technology • 460218 Construction Forms • 460214 Site Layout and Foundations • 219905 Civil Engineering & Architecture *(PLTW)* Note: (PLTW) courses require an agreement between Project Lead The Way and the Local School District please see the link to PLTW Program Requirements for further information. .	Engineering Technology Instructor Architect Interior Designer Home Improvement Contractor Carpenter Construction Laborer Construction Manager Construction Supervisor Project Manager

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CTE-PLTW HYBRID
CAREER PATHWAYS
2015-2016

ELECTRICAL CONSTRUCTION ENGINEERING
CIP 15.0303.00

PATHWAY DESCRIPTION: This pathway provides the opportunity to blend Career & Technical Education (CTE) courses with Project Lead the Way (PLTW) courses to help students apply technical skills along with science, technology, engineering, and math (STEM) skills to solve real-world problems. A program that prepares individuals to apply technical knowledge and skills to install, operate, maintain, and repair electric apparatus and systems such as residential, commercial, and industrial electric-power wiring; and DC and AC motors, controls, and electrical distribution panels. Includes instruction in the principles of electronics and electrical systems, wiring, power transmission, safety, industrial and household appliances, job estimation, electrical testing and inspection, and applicable codes and standards.

BEST PRACTICE CORE	EXAMPLE ILP-RELATED CAREER TITLES
Foundational Skills Necessary for Career-Ready Measure: (KOSSA/Industry Certification) *Complete (5) FIVE CREDITS from the following :* • 219901 Introduction to Engineering Design *(PLTW)* • 460316 Circuits I • 460319 Circuits II • 219903 Digital Electronics *(PLTW)* Note: (PLTW) courses require an agreement between Project Lead The Way and the Local School District please see the link to PLTW Program Requirements for further information.	Electrical Engineer Electrical Engineering Tech Electrician

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The "2015-2016 Preview to Career Pathways" document was published on 12/19/2014 in an effort to support preparation for master scheduling the 2015-2016 academic year. The following corrections have been made to the initial publication of the document. Effective 3/24/2015.

PATHWAY	PAGE NUMBER	REVISION
MANUFACTURING (all areas)		
All applicable pathways	<u>57</u>, <u>71</u>, <u>141</u>, <u>142</u>, <u>144</u>, <u>145</u>, <u>151</u>, <u>152</u>, <u>153</u>, <u>154</u>	CORRECTED course number for 499920 Basic Blueprint Reading
All applicable pathways	<u>68</u>, <u>141 thru 145</u>, <u>212</u>	CORRECTED course number for 499925 Basic Troubleshooting
WOOD MANUFACTURING		
Automated Wood Processor CIP 48.0703.01	<u>158</u>	CORRECTED course number for 480719 Technical Drawing and Blueprint Reading
Cabinetmaker CIP 48.0703.02	<u>159</u>	ADD (*) to 480725 CAD for Wood Technology to indicate a half-credit (.5) course ADD 480110 Introduction to Computer Aided Drafting as an elective choice option
Furniture Maker CIP 48.0703.03	<u>160</u>	ADD (*) to 480725 CAD for Wood Technology to indicate a half-credit (.5) course ADD 480110 Introduction to Computer Aided Drafting as elective choice option
Millworker CIP 48.0703.04	<u>161</u>	ADD (*) to 480725 CAD for Wood Technology to indicate a half-credit (.5) course
Wood CNC Operator/Programmer CIP 48.0703.05	<u>162</u>	ADD(*) to 480725 CAD for Wood Technology to indicate a half-credit (.5) course
INDUSTRIAL MAINTENANCE		
Maintenance Mechanic CIP 47.0303.01	<u>141</u>	ADD 499920 Basic Blueprint Reading (.5 credit course) as pathway choice options ADD 470351 Robotics and Industrial Automation (Ind Maint) Corrected course number for Maintaining Industrial Equipment to 470318
Electrical Technician CIP 47.0303.02	<u>142</u>	ADD 499920 Basic Blueprint Reading (.5 credit course) as pathway choice option
Maintenance Machinist CIP 47.0303.03	<u>143</u>	ADD 499920 Basic Blueprint Reading (.5 credit course) as pathway choice option Corrected course number for Maintaining Industrial Equipment to 470318

Fluid Power Mechanic CIP 47.0303.04	144	ADD 499920 Basic Blueprint Reading (.5 credit course) as pathway choice options ADD 470301 Shop Management (.5 credit course) as pathway choice option ADD 470351 Robotics and Industrial Automation (Ind Maint) Corrected course number for Maintaining Industrial Equipment to 470318
Refrigeration Technician CIP 47.0303.05	145	ADD 499920 Basic Blueprint Reading (.5 credit course) as pathway choice options ADD 470301 Shop Management (.5 credit course) as pathway choice option Corrected course number for Maintaining Industrial Equipment to 470318
IMT Electrical TRACK Pathway 47.0303.99	212	ADDED NEW PATHWAY
CONSTRUCTION TECHNOLOGY		
Industrial Electrician Assistant CIP 46.0302.02	67	ADD 460331 Electrical Motor Controls as pathway choice option
Complimentary Or Advanced Coursework Beyond Electrical Technology Career Pathways	70	REMOVED 4600331 Electrical Motor Controls from list of 'beyond the pathway' courses.
Bricklayer Assistant CIP 46.0101.01 Carpenter Assistant CIP 46.0201.01 Finish Carpenter Assistant CIP 46.0201.05 Electrician Assistant CiP 46.0302.01 Industrial Electrician Assistant CIP 46.0302.02 Residential Electrician CIP 46.0302.03 Bricklayer Assistant CIP 46.01010.01	55, 57, 59, 60, 62, 66, 67, 68, 71, 75	CORRECTED course number for Industrial Safety to 499930
Domestic Air Conditioner and Furnace Installer CIP 47.0201.03 Refrigeration Mechanic CIP 47.0201.04 Environmental Control System Servicer Assistant CIP 47.0201.05	52, 53, 54, 58	CORRECTED course number for 460828 Refrigerator Fundamentals 460826 Electrical Components 460824 Cooling and Dehumidification

MASONRY TECHNOLOGY		
Mason Apprentice CIP 46.0101.02	72	ADD 460119 Concrete Finishing as pathway choice option.

HEALTH SCIENCES		
Allied Health CIP 51.0000.01	102	ADD 170167 Body Structures and Functions as pathway choice option (Note: Former course title was Health Science Anatomy and Physiology) ADD 302631 Anatomy (Science Course)
Dental Technology CIP 51.0601.01	104	ADD 170167 Body Structures and Functions as pathway choice option (Note: Former course title was Health Science Anatomy and Physiology) ADD 302631 Anatomy (Science Course)
EKG Technology/Technician CIP 51.0902.01	105	ADD 170167 Body Structures and Functions as pathway choice option (Note: Former course title was Health Science Anatomy and Physiology) ADD 302631 Anatomy (Science Course)
Phlebotomy Technician CIP 51.1009.01	108	ADD 170167 Body Structures and Functions as pathway choice option (Note: Former course title was Health Science Anatomy and Physiology) ADD 302631 Anatomy (Science Course)
Pharmacy Technician CIP 51.0805.01	109	ADD 170167 Body Structures and Functions as pathway choice option (Note: Former course title was Health Science Anatomy and Physiology) ADD 302631 Anatomy (Science Course)
Pre-Nursing CIP 51.2699.01	110	ADD 170167 Body Structures and Functions as pathway choice option (Note: Former course title was Health Science Anatomy and Physiology) ADD 302631 Anatomy (Science Course)
Sports Medicine CIP 51.0913.00	111	REMOVE 170303 Internship: Sports Medicine as pathway choice option

COMPUTER AIDED DRAFTING (CAD)		
Architectural Designer CIP 15.1301.03	132	ADD 480179 Special Problems (CAD) as a pathway choice option ADD 480112 Intermediate Computer Aided Drafting as a pathway choice option
Mechanical Designer CIP 15.1301.02	131	ADD 480112 Intermediate Computer Aided Drafting as a pathway choice option
Manufacturing Related Programs	134, 147, 150, 157	ADD 480179 Special Problems – CAD to "Complementary or Advanced Coursework Beyond the Pathway" ADD 470336 Special Topics – Industrial Maintenance Technology to "Complementary or Advanced Coursework Beyond the Pathway" ADD 480899 Special Topics – Metal Fabrication to "Complementary or Advanced Coursework Beyond the Pathway" ADD 480599 Special Topics-Welding to "Complementary or Advanced Coursework Beyond the Pathway"

FAMILY AND CONSUMER SCIENCES

Family and Consumer Sciences Pathways	92, 93, 94, 95, 96,	Corrected course number 200161 FACS Essentials Health to indicate a (.5) half credit course option
Fashion & Interior Design CIP 50.0407.00	95	REMOVED 200161 FACS Essentials Health as a pathway choice option ADD 200801 Internship: Fashion & Interior Design and 200810 Co-op: Fashion & Interior Design as pathway choice options
Culinary & Food Services CIP 12.0500.00	93	ADD 200478 Internship: Culinary Arts and 200409 Co-op: Culinary Arts as pathway choice options
Early Childhood Education CIP 13.1210.00	94	ADD 200210 Co-op: Early Childhood Education
Fashion & Interior Design CIP 50.0407.00	95	ADD 200801 Internship: Fashion & Interior Design ADD 200810 Co-op: Fashion & Interior Design
Hospitality Services CIP 52.0905.00	98	ADD 200601 Internship: Hospitality Services ADD 200690 Co-op: Hospitality Services

INFORMATION TECHNOLOGY

Informatics Pathway CIP 11.0802.00	118	ADD 110918 Information Technology Co-op OR 110919 Information Technology Internship as a pathway choice option
Computer Science CIP 11.0701.01	117	ADD 10730 Computer Science and Software Engineering (PLTW) course number as pathway choice option MOVE 110752 Special Topics in Computer Science to Complementary or Advance Coursework page 127

VISUAL AND PERFORMING ARTS

Visual Art CIP 50.0702.00	210	CORRECTED course numbers 500752 Visual Art-Pathway III 500753 Visual Art-Pathway IV

ENGINEERING & TECHNOLOGY EDUCATION

Manufacturing Engineering Technology Technician CIP 15.0613.00	78	ADD 210224 Principles of Engineering & Technology as a pathway choice option
Project Lead the Way (PLTW) CIP 14.0101.00	79	ADD 219906 Engineering Design and Development (PLTW) as a pathway choice option
Engineering & Technology Design CIP 15.1302.00	84	ADD 210224 Principles of Engineering & Technology as a pathway choice option CORRECTED course number 210222 Engineering Design II

TRANSPORTATION EDUCATION

Motorcycle Maintenance and Repair Technician CIP 47.0611.00	196	REMOVED course 460330 Fundamentals of Electricity and Lab from pathway

		ADDED course 470840 Small Engine Electrical Systems and Lab as pathway course option
BUSINESS EDUCATION		
Legal Office CIP 22.0301.00	34	Recommended Pathway sequence revised. No courses added or deleted.
ADDED JROTC PATHWAYS		Pages 213-217
ADDED CTE-PLTW HYBRID PATHWAYS		Pages 218-229

The following changes have been made to the Preview to Career Pathway document since initial publication 12/19/2014.		
Table of Contents		
Civil Architecture & Construction Technology CIP 15.0101.01	5	Corrected CIP code number for Civil Architecture & Construction Technology
EKG/Technology/Technician CIP 51.0902.01	5	Corrected CIP code number for EKG Technology/Technician
Interactive Media Arts CIP CIP 10.0304.00	7	Corrected CIP code number for Interactive Media Arts
Automotive Maintenance and Light Repair Technician CIP 47.0604.01	7	Corrected CIP code number for Automotive Maintenance and Light Repair
CTE-PLTW Hybrid Pathways Computerized Manufacturing and Machining (CMM) Engineering Fabrication Engineering CIP 14.1901.00	8	Corrected CIP code number for CMM Engineering and Fabrication Engineering
BUSINESS & MARKETING EDUCATION		
Business & Marketing Education CIP 13.1310.00	36, 49	Corrected course number for 331020 Principles of Teaching
Web Design for Business CIP 52.0208.01	37	Corrected CIP code number for Web Design for Business
E-Commerce CIP 52.0208.02	44	Corrected CIP code number for E-Commerce
CONSTRUCTION TECHNOLOGY		
Mason Assistant CIP 46.0101.02	72	Corrected name of Pathway from "Mason Apprentice" to "Mason Assistant"
ENGINEERING & TECHNOLOGY EDUCATION		
Project Lead the Way (PLTW) Engineering CIP 14.0101.01	79	Corrected CIP code number for PLTW Engineering
Civil Architecture & Construction Technology CIP 15.0101.01	85	Corrected CIP code number for Civil Architecture & Construction Technology

Sustainability & Energy Application CIP 15.0503.01	[86](#)	Corrected course number for 210232 Basic Electricity & Energy Systems
FAMILY AND CONSUMER SCIENCES EDUCATION		
Fundamentals of Teaching CIP 13.1308.00	[97](#)	Corrected course number for 331020 Principles of Teaching
Early Childhood Education CIP 13.1210.00	[94](#)	
HEALTH SCIENCES EDUCATION		
Allied Health CIP 51.0000.01	[102](#)	Recommended Pathway sequence revised. No courses added or deleted.
Dental Technology CIP 51.0601.01	[104](#)	Recommended Pathway sequence revised. ADDED 170501 Allied Health Core Skills as a pathway choice option
EKG Technology/Technician CIP 51.0902.01	[105](#)	Recommended Pathway sequence revised. REMOVE 170550 Internship: Allied Health as a pathway choice option
Emergency Medical Technician CIP 51.0904.01	[106](#)	Corrected CIP Code Number for Emergency Medical Technician
Phlebotomy Technician CIP 51.1009.01	[108](#)	Recommended Pathway sequence revised. ADDED 170501 Allied Health Core Skills as a pathway choice option ADDED 170169 Medical Math as a half or full credit pathway choice option
Pharmacy Technician CIP 51.0805.01	[109](#)	Recommended Pathway sequence revised. ADDED 170501 Allied Health Core Skills as a pathway choice option